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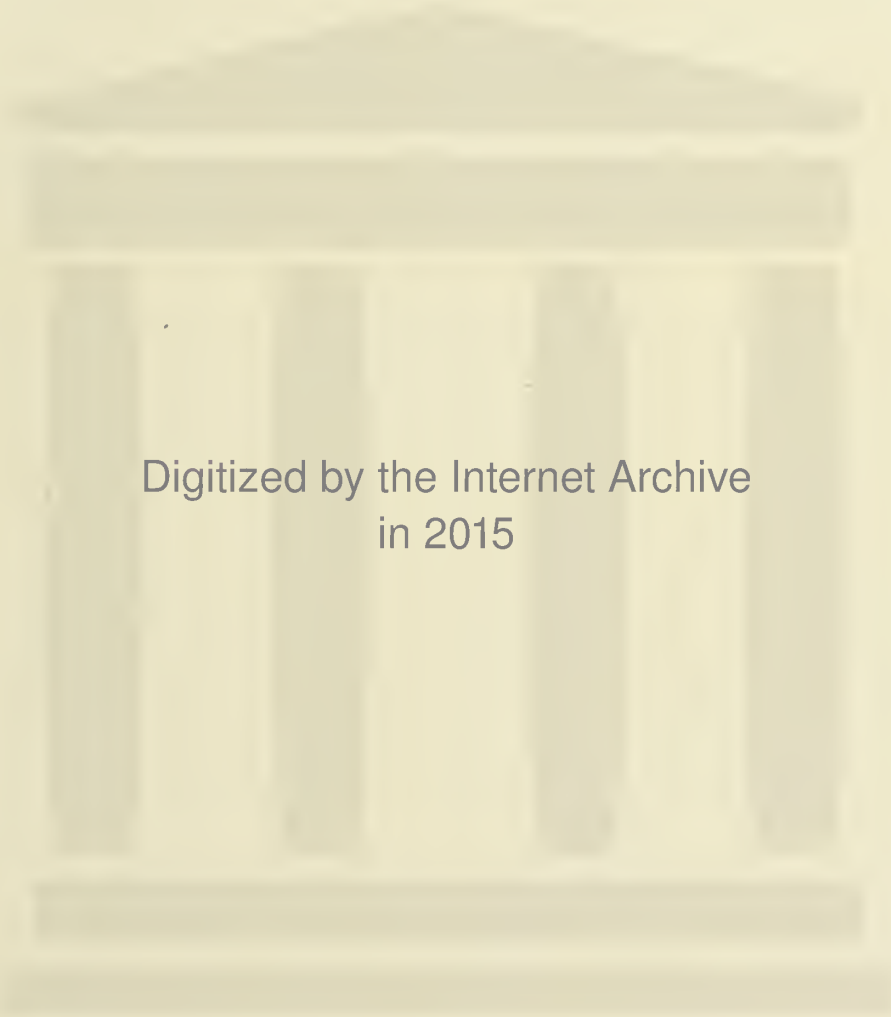
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# THE CANADIAN HORTICULTURIST

Vol. 41 - No. 1  
JANUARY - 1918

TORONTO, ONTARIO

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## FRUIT EDITION

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## Final Appeal Judge Gives Ruling on Exemption of Farmers

*Mr. Justice Duff (the Final Court of Appeal) Declares it is Essential that there shall be No Diminution in Agricultural Production*

*(Published by authority of Director of Public Information, Ottawa.)*

Hon. Mr. Justice Duff gave judgment on December 6th, in the first test case brought before him, as Central Appeal Judge (the final court of appeal), for the exemption of a farmer. The appeal was made by W. H. Rowntree in respect of his son, W. J. Rowntree, from the decision of Local Tribunal, Ontario, No. 421, which refused a claim for exemption. The son was stated to be an experienced farm hand, who had been working on the farm continuously for the past seven years, and ever since leaving school. He lives and works with his father, who owns a farm of 150 acres near Weston, Ontario. With the exception of a younger brother, he is the only male help of the father on the farm. The father is a man of advanced years.

In granting the man exemption "until he ceases to be employed in agricultural labor," Mr. Justice Duff said:

"The Military Service Act does not deal with the subject of the exemption of persons engaged in the agricultural industry; and the question which it is my duty to decide is whether the applicant being and having been, as above mentioned, habitually and effectively engaged in agriculture and in labor essential to the carrying on of agricultural production, ought to be exempted under the provisions of the Military Service Act.

"These two propositions are indisputable:

"(1) In order that the military power of the allies may be adequately sustained, it is essential that in this country and under the present conditions, there should be no diminution in agricultural production.

"(2) The supply of competent labor available for the purpose of agricultural production is not abundant, but actually is deficient.

"The proper conclusion appears to be that the applicant, a competent person, who had been habitually and effectively engaged in labor essential to such production, ought not to be withdrawn from it.

"It is perhaps unnecessary to say that such exemptions are not granted as concessions on account of personal hardship, still less as a favor to a class. The sole ground of them is that the national interest is the better served by keeping these men at home. The supreme necessity (upon the existence of which, as its preamble shows, this policy of the Military Service Act is founded) that leads the State to take men by compulsion and put them in the fighting line requires that men shall be kept at home who are engaged in work essential to enable the State to maintain the full efficiency of the combatant forces, and whose places cannot be taken by others not within the class called out."

*Ottawa, Dec. 8, 1917.*



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# The Canadian Horticulturist

Fruit Edition

Vol. XLI

TORONTO, JANUARY, 1918

No. 1

## Apple Spraying\*

G. E. Sanders, Dominion Entomological Laboratory, Annapolis Royal, N.S.

IN coming before you to discuss the subject of apple spraying, I realize that my paper must deal with principles that hold true everywhere, and must in the absence of full and detailed knowledge of local conditions in the Province of Quebec, avoid as far as possible, such questions as the dates or periods at which to apply spray, whether one or two sprays are necessary before the blossoms, whether one or two sprays are necessary after the blossoms, etc. These are questions which the local climate, the prevailing varieties of apples and the insects and fungus diseases dictate the answer to, and the Rev. Father Leopold, Mr. C. E. Petch, Prof. T. G. Bunting and others of your excellent local men are best qualified to answer. In Nova Scotia we lost at least twenty per cent. of the total crop one year through a portion of the growers following the advice of a man not familiar with local conditions and omitting the first spray. It just happened that we had that year a serious infection of apple scab started about a week before the blossoms opened and as the blossoms opened it spread to the set, removing ninety per cent. of the crop from the orchards that were not sprayed twice before the blossoms. I would therefore ask you to consult your local men as to the date of spraying and local pests, rather than have you hinge the failure or success of your apple crop on advice from an outsider like myself.

### Effect of Spraying.

We have few men left in Nova Scotia to convert on the value of spraying in growing clean apples. In our heaviest apple county, namely Kings, over 87 per cent. of the orchard is sprayed according to Prof. Brittain's latest census. What the people there want to know is what spray to use and when to use it. I have no doubt that you here have been told and showed so often how much cleaner and better sprayed apples are than unsprayed that it would bore you to recite figures

showing the improvement in quality for the current year due to spraying.

The effect of spraying on the quantity of fruit of the current year is something upon which experiments show the widest variation. If an insect such as the tent caterpillar, canker worm, tussock moth, codlin moth or the apple

### Helps Society Members

At a meeting of the Perth Horticultural Society recently, we decided to give The Canadian Horticulturist as a premium to all our members during the coming year, as we have in the past. We have members in our society who look forward to the receipt of The Canadian Horticulturist each month, and who quote it as an authority on various topics that come before us at our meetings.

N. G. DICKSON,  
Sec. Hort. Society,  
Perth, Ont.

maggot are to be controlled spraying may show enormous increases in yield for the current year. Again, if some of the fungus diseases are very bad, such as apple scab developing early enough to infect the young stems of the blossoms and young sets, spraying may mean the difference between a full crop and no crop.

On the other hand when very few insects are present and the season happens to be dry and unfavorable to the development of fungus diseases, it may, and often does, happen that the trees sprayed with lime and sulphur will not give so many apples as the unsprayed. Spraying with lime sulphur as practised to date in the majority of cases must be considered as an insurance against loss of the crop by fungus and insect pests and against the growing of all No. 3 apples, but cannot be regarded as beneficial in the rare cases where neither fungus diseases nor insect pests are present in injurious num-

bers. Spraying with lime sulphur as usually practised may be regarded as the lesser of two evils, the greater evils being the fungus and insect pests, which are offset by the spray.

It has long been noted that thorough spraying equalizes the crops of apples so that after a man has sprayed thoroughly for several years he has practically no failures and no bumper crops. Many of our orchardists in Nova Scotia have varied less than twenty per cent. from the average during the last seven years. One orchard very thoroughly sprayed varied less than one and a half per cent. during the years 1914-15-16.

In our browntail moth work in the orchards we have long noted that the orchards that were sprayed usually held their leaves later in the fall than those that were not sprayed. It was thought that there might be some relation between the holding of the leaves in the fall and the annual bearing and some studies were made in order to determine this point.

The first experiment was in an orchard of 148 trees that had never before been sprayed and which in 1912 and 1913 gave less than 25 barrels of apples. In 1914 it gave 16 barrels. In 1915 we sprayed the orchard thoroughly and got 85 barrels of shipping apples. In 1916 the orchard was not sprayed but it gave 160 barrels. In 1917 it was not sprayed and it gave 23 barrels. This tended to corroborate our contention that spraying as a rule influenced the quantity of fruit produced the following year more than it did the quantity produced the current year.

In 1915 we sprayed so as to damage the leaves on four Wagner trees in a row across a block of Wagners. The next spring the trees stood out the only four in the orchard with a small amount of bloom on them. In another orchard, Prof. W. H. Brittain sprayed one half in 1915 and 1916, leaving the other half unsprayed. In 1915 the sprayed half gave 2.46 barrels of apples a tree while the unsprayed half gave only .69 barrels per tree. On October 25th, 1915, we photographed

\* Extract from an address delivered before the recent annual convention of the Quebec Pomological Society.



the trees. Where we sprayed, the trees were in full leaf and where we had not sprayed they were practically defoliated. The next spring we photographed the same trees. The plot that had given a full crop the year before and had held its leaves late, had a full bloom and the plot that had a small crop the year before and where the leaves had dropped early, on account of the blackspot getting on them, had almost no bloom. This rule, of course, only holds true in years where apple scab is prevalent enough to infect the leaves and cause them to drop early in the fall. In years where no apple scab is present and the leaves stay on the unsprayed trees as late as they do on the sprayed, there will be little, if any, difference in the amount of bloom the following spring.

When we had worked with the principle for two years, Prof. Brittain and I became convinced as to the accuracy of it and in December, 1916, we found by enquiry that on account of the prevalence of apple scab the leaves had dropped very early in Ontario; we therefore predicted a short apple crop in Ontario in 1917 and warned the Nova Scotia apple growers who had a chance of a crop that it would be up to them in 1917 to supply the markets usually supplied by Ontario and to care for their orchards accordingly. This has proved out more true even than we anticipated, for this year Nova Scotia is selling her crop in Ontario, and is even supplying the orchard towns of Ontario with their fruit.

I am convinced that the effect of the spray in keeping the apple scab off the leaves and so causing them to stay on late in the fall, thus going a long way towards insuring a crop for the coming year, is one of the greatest, if not the greatest, benefit that we get from spraying and it is a benefit that is not generally recognized. The McIntosh Red in New Brunswick in 1917 was a failure on account of lack of bloom, that in turn being caused by premature dropping of the leaves in 1916, due to the apple scab infection.

#### Combinations of Materials.

It would appear that in the past too little attention has been paid to the combining of poisons and fungicides for spraying purposes. Because a fungicide by itself is harmless to foliage and a poison by itself is equally harmless, it has often been assumed that a mixture resulting from a combination of the two would be harmless, when in fact the materials resulting from the mixture of the two were possibly extremely dangerous or useless. On the other hand poisons which are harmful to foliage when used alone may in many cases be rendered safe when combined with the proper fungicides.

As bases for our combinations we have tried three main fungicides, Bordeaux mixture and its modifications, lime sulphur and the various sodium sulphide combinations, such as Sulfo-cide, soluble sulphur and Spra sulphur.

#### Bordeaux.

All poisons can be combined with



A Garden That Gave Results.

In a garden 100 feet square, Dr. Metherall, of Burlington, Ont., produced enough vegetables and strawberries for a family of four. The Allies require many more such gardens this year.

Bordeaux with a greater degree of safety than with any other fungicide, even soluble arsenicals such as sodium arsenate being added in finely powdered form to ordinary stone lime Bordeaux and used with perfect safety on the potato. On the apple when using sodium arsenate it seems advisable to slake the lime with a water solution of the sodium arsenate, thus forming arsenate of lime which is then used the ordinary way in making the Bordeaux. Paris green, the old standby, can be used with greater safety with Bordeaux than in any other way.

Arsenate of lead makes an excellent poison with Bordeaux on the apple where there is not a serious outbreak of biting insects. Arsenate of lime can be used with Bordeaux both on the apple and potato. Arsenate of zinc is primarily a potato poison and one of the best, but it can be used with a high degree of safety with Bordeaux on the apple. This season we combined finely ground white arsenic with Bordeaux and used it on the potato with very slight burning, and fair killing results.

We are not yet in a position to say what poison is the best to use with Bordeaux. For the present it would seem that the cheapest poison, such as arsen-

ate of lime, would be the best, but on the apple arsenate of lead might prove better on account of its adhesive qualities. Until we know more about poisons with Bordeaux I would hesitate to recommend any one of them definitely; especially as all are to a great degree safe when used with Bordeaux.

#### Lime Sulphur.

Up until last year lime and sulphur was almost universally used with arsenate of lead. We had tested arsenate of lime with it in a small way in 1915 and to the extent of four tons in the Annapolis Valley in 1915, and on the strength of our experiments and the universal satisfaction that the four tons gave to the people who used it, we recommended arsenate of lime with lime and sulphur in a large way in 1917 with the result that twenty-two tons of arsenate of lime were used in Nova Scotia during the past season.

In all of our experimental plots for three years we have, without exception, gotten more fruit and less foliage injury from the lime sulphur, arsenate of lime combination than from the lime sulphur, arsenate of lead combination. In the orchards the results have been substantially the same, the variation in weighing out and mixing and in application more than accounting for the variations in results over the country.

In theory, too, the arsenate of lime sulphur combination is the safer. When straight tricalcium arsenate, with less than one half of one per cent. of soluble arsenic, is added to lime and sulphur no chemical change takes place, the lime sulphur remaining in full strength while the arsenate of lime remains as insoluble as ever.

When standard arsenate of lead is added to lime and sulphur, double decomposition occurs with the formation of lead sulphide, the black insoluble precipitate of sludge that is found at the bottom of so many spray tanks and a crude arsenate of lime, five per cent. of which is soluble. As a rule this chemical change decreases the amount of sulphur in solution by about thirty per cent.

One can easily see from the chemical standpoint alone that arsenate of lime is preferable to arsenate of lead as a poison to use with lime sulphur solutions. When this is borne out by practical tests in the field, the argument becomes more convincing and when we find that arsenic in the form of arsenate of lime costs about one-half of what arsenic in the form of arsenate of lead costs it becomes plain that there is only one poison to recommend with lime sulphur and that is arsenate of lime, from half to three-quarters of the powdered material to forty gallons of solution.



### Sodium Sulphides.

Sulfocide, Spray Sulphur, soluble sulphur materials have been on the market for several years and have given from fair to good results in the control of fungus diseases. When used straight they are safe on apple foliage. All have been tried in combination with the arsenicals of copper, lead and zinc, but owing to double decomposition taking place with the resultant formation of soluble arsenical salts of sodium, they have in the past proved unsafe as apple sprays. In 1915 we found that arsenate of lime did not decompose when added to sodium sulphide, consequently the two could be used in combination with a fair degree of safety. Unfortunately arsenate of lime cannot be used alone on apple foliage and sodium sulphide does not protect arsenate of lime from the action of the air in the same way as lime sulphur and Bordeaux mixtures do. We, therefore, found that the second and third application of the sodium sulphide arsenate of lime combination resulted in considerable yellowing and dropping of the leaves even though no burning was apparent. It was at the same time found that one and a quarter pounds of arsenate of lime to one hundred gallons, used with sodium sulphide, was as efficient an insecticide as two pounds of the same poison with lime and sulphur.

In our work of 1917 we have been practically able to eliminate the yellowing

which resulted from the use of arsenate of lime with sodium sulphide by reducing the quantity of arsenate of lime and adding an excessive quantity of either water slaked lime or hydrated lime. To one hundred gallons we therefore recommend two and a half to three and a half pounds of soluble sulphur (a sodium sulphide), one and a quarter pounds of arsenate of lime and fifteen to twenty pounds of either hydrated or water slaked lime, in cases where the sodium sulphide sprays are recommended. This combination we used four times on apples during the past season with no trace of yellowing or burning, so for the one or two applications which this combination is recommended for, we feel absolutely safe in stating that it is harmless to apple foliage.

### B. T. S. or Barium Tetrasulphide.

This material comes in dry or powdered form and when brought into solution is very similar to lime sulphur in its action, but with one difference, it acts much more rapidly and completely

on arsenate of lead when brought in contact with it and oxidizes more rapidly on exposure to the air. As with lime sulphur, arsenate of lime is the proper poison to use with B. T. S.

### Potassium Sulphide.

Potassium sulphide or liver of sulphide is one of the old fashioned fungicides which acts in the same manner as the sodium sulphides, safe alone but dangerous when used with any of the metallic arsenates. We have found that it can be used with arsenate of lime in the same manner as sodium sulphide is used and in cases where it is available it can be used with arsenate of lime and an excess of lime with perfect safety.

### Nicotine Sulphate.

This material can be used with any of the fungicides or poisons with perfect safety. From Prof. Brittain's experience it would seem that Nicotine sulphate is more efficient with sodium sulphide solutions than with lime sulphur or Bordeaux.

## Orchard Trees Which Do Not Bear

By W. A. McCubbin

OUR attention is often called to trees or orchards which do not bear fruit, and so many cases of these have been noted that it seems worth while to say a few words in connection with the subject.

In a number of cases the lack of bearing is merely temporary, and is due to the winter killing of buds, to unhealthiness in trees, presence of disease, or over-bearing in the previous summer. With these causes almost everyone is familiar, and it is not intended to discuss them here. The lack of bearing that usually gives most trouble is a more or less permanent condition in the tree. Year after year the tree produces either no crop at all or a mere scattering of fruit. This sterility is due to various causes, and it would be impossible to say which cause was active in any particular case, without a very careful study. A number of causes of permanent sterility are mentioned in the hope that growers will be able to recognize the peculiar cause in their own orchards, and either get over the difficulty or remove the tree.

### 1—Blossom Sterility.

It very often happens that the lack of crop is due to imperfect fertilization of the blossoms. Every fruit grower knows that before the young fruit will start to develop the yellow, dust-like pollen which is found in the flowers, must come into contact with the embryo fruit, or at least with the small, stalk-like growth which rises from this embryo in the centre of the flower. When the pollen grain falls on the top of this stalk it grows much as seed does, sending a long delicate thread down through the stalk into the embryo, which it fertilizes. After this takes place the fruit



This five-year-old apple tree in the orchard of W. A. Fraser, Trenton, Ont., produced half a barrel of apples.



will develop. If it does not take place the blossom will fall without "setting." Now it is a well known fact that the pollen on the blossoms in some trees is incapable of fertilizing into blossoms on that same tree. Pollen must be brought from a nearby tree of the same kind in order to fertilize the blossoms, and if no such trees are near at hand so that bees can readily carry their pollen, the tree will be sterile. This need of cross fertilization from one to another explains a good deal of the sterility in our apple orchards.

### 2—Sterility of Varieties.

Certain varieties of trees are well known to be weak in setting fruit. It is only occasionally that some of them will be induced to bear a full crop. This conditions of affairs is by no means common, since such partially sterile varieties are weeded out by the nurseries and experimental farms who are engaged in the production of new fruits. They do not often come into commercial use unless they are of exceptionally good quality in other respects. In setting a new orchard great care should be taken to inquire into the record of varieties in this respect.

### 3—Individual Sterility.

Many young fruit growers do not realize a fact which is very apparent to old experienced men who have brought up several orchards, that trees possess a certain amount of individuality; they differ among themselves just as human beings and animals do, and since we often meet with animals and human beings who are sterile, we may expect to find the same condition in certain trees as well. No reason can be given for this except that it is a peculiarity of the individual plant.

### 4—Strong Vegetable Growth.

In a limited number of cases lack of productiveness may be due to too strong vegetable growth. This is well known to gardeners and growers of hothouse plants. When a gardener wishes to send a rose bush or a geranium into bearing he cuts down the supply of water and food, especially the nitrogen food supply. When a plant is growing very luxuriantly it tends to put off the bearing stage as long as possible. There is one principle to be noted here which concerns plants and animals alike. Every organism makes an effort to reproduce itself before it dies, and in either plants or animals adverse conditions of climate, accident, or food, which threaten its existence will tend to quicken the reproductive functions. The hint given in this point is valuable for the orchardist; if a tree is growing vigorously but is making no attempt to produce fruit it may often be induced to do so by starving or

wounding it, which means either reducing the food material or pruning. It is important to note here that excessive nitrogen tends to encourage vegetative growth, while the addition of a greater proportion of potash tends to increase the reproductive function. Also the check that is given by pruning often stimulates the tree to form blossom buds, consequently to produce more fruit.

In conclusion it may be said that when trees are not productive they should be studied by the orchardist himself. He should make sure that they are being properly fertilized, then if attention to the matter of food supplies and pruning do not cure them they are not among the varieties listed as shy bearers, it is probable that they are weak in production individually, in which case the best plan would be to get rid of them and plant fresh.

## VEGETABLE PROBLEMS ANSWERED

Prof. J. W. Crow, O.A.C.

### Varieties of Rhubarb.

Will you kindly send information about the best varieties of rhubarb for clay soil, method of cultivation, etc.?—E. J.

The two common varieties in use at the present time are Victoria and Linnaeus, although these are being replaced to some extent by Sutton's Seedless. However, it is almost impossible to get plants of this variety, as very few of the seedsmen list it. Rhubarb is best transplanted in the spring. The old roots are dug up, split into sections, in most cases one bud to a section. These are planted in trenches, putting the bud one inch under the soil, and are then allowed to grow for two years before any of the crop is pulled.

### Growing Asparagus.

Would like information regarding growing Asparagus. The kind of soil used; when it should be planted; what kind of roots are best to plant; the proper depth to plant and the space between each root; some idea as to the value of the roots and when to secure them.—E. F.

The best type of soil is sandy loam, well drained, but containing sufficient soil moisture, with a south or south-east slope. The young plants are set as early in the spring as it is possible to get the ground ready, in rows five feet apart and plants eighteen inches in the rows, the young plants being set with the crowns at least four inches under the surface. One year old plants are much the best, and where one has a choice it is well to take those that have a smaller number of buds but larger in size, as these will give larger stalks later on. Our plan is to sow the seed in the field in the spring, mixing it half and half with radish seed, in rows

about two feet apart. The radish seed will come up and mark the row so we can cultivate, and is out of the way before the asparagus comes through, as it doesn't appear until about three or four weeks after seeding. When the asparagus plants are about four inches high they are thinned out to about one or two inches apart, and are allowed to grow, and kept clear of bugs until fall, when the tops are cut off and burnt. The young plants are taken up, tied in bundles and placed in moist sand in a cold cellar over the winter or buried in the ground out of doors. You can buy roots from seedsmen, and would suggest you write them for prices. If you cared to you could grow your own plants from seed, but it would take an extra year.

### Starting Sage.

Kindly send us information in connection with sage growing, transplanting, etc.—H. L.

We ordinarily sow the seed in the garden early in spring in rows 18 ins. apart. If you want it singly, plants should be thinned out to 10 or 12 ins. Or you could plant seeds in a hot-bed and transplant into the field. The plants when transplanted are handled the same as any other planting crop.

### Disposing of Onions.

With regard to late sown onions—Yellow Globe Danvers and Red Weathersfield, would the small ones be suitable for sets next spring, and would the medium size ones, that are too small for sale, be of any use as hen feed, boiling tops and all?—S. J.

Regarding the small onions, these may be used for sets. Red Weathersfield does not make a good bunching onion on account of its color. However, if you are in a section where you can sell red onions, you might be able to dispose of them. We have used up to one and a quarter inches in diameter for sets, but these are always pulled the very first. I am doubtful about the use of onions for hen feed, as I am afraid they would taint the eggs.

### Non-Productive Cucumbers.

I have quite a large patch of cucumbers and they are good, healthy vines, but produce mostly sterile blossoms. What is the cause of it? They have been the same each year at first, but they get all right later on. I could have cucumbers from two to three weeks earlier every year if the blossoms were good.—F. L.

The cause of the lack of fruit in the early season is probably due to moist weather, which causes failure of the fruit to set. Cucumber plants, as a rule, carry about forty male blossoms to one female, and wet weather hampers very much the fertilization of the one from the other as they are on separate parts of the plant. For this reason, in the early season, the cucumbers will not all fertilize and will turn yellow and drop off. This only happens with the American varieties, as the English have been bred to set without being pollenized.



# Low Temperature Effect on Set of Fruit\*

J. G. Chapais

**A**FTER the heavy crop of fruit we had in Eastern Quebec in 1916, we did not expect to get a great abundance of fruit last year. Nevertheless, from the appearance of our trees before and, above all, during the blooming period, we thought we could hope to have a good crop, though rather a little below the average. But, how greatly we were disappointed.

The blossoms were below the average for cherries, very good for plums and a little below the average for apples. But, cherry and plum trees, instead of beginning to bloom by the 28th of May, as usual, began only by the 10th of June, and apple trees, instead of beginning to open their buds by June 10th, opened them only from June 20th to June 30th. The cause of such a delay was the cold, gloomy and rainy weather that prevailed during May, with the blowing, for the most of that period, of north eastern winds. During May we had twenty days when the temperature fell below 50 degrees F., five sharp frosts, seven rainy days and three slight falls of snow.

Though our fruit trees bloomed fairly well, but in a rather belated way, very little fruit set. It was below the average for cherries, about the average for plums and almost nothing for apples. Our trees had wintered well, as it was shown by their fair blooming. We must, therefore, come to the conclusion that it is the temperature that was at fault. The May temperature was unbearable. The June weather when blooming occurred, was not more favorable. Here is a summary of what it was: Sixteen days very cool, between 50 and 60 degrees F., except two days with 42 and 43 degrees F.; of these cool days, ten gave us rain and six were cloudy. The wind blew from north-east for twenty days. Now, we remember having read that, before a convention of the Ontario Fruit Growers' Association, Mr. W. T. Macoun, Dominion Horticulturist, said that should the temperature run fairly regularly below 70 degrees F. during the blossoming season, pollination is not likely to be good. Experience has proven that if we have not a temperature at least moderately warm with a few sunny days, during blossoming time; if, above all, the weather is cool and rainy, during that period, everything then contributes to hinder good pollination. This is the weather that we had in the district below Quebec. During the period when it occurred fruit did not set,

from the 10th to the 30th of June. In our orchard, last year, we gathered three hundred bushels of apples; this year, we hardly got sixteen bushels.

A fact which shows that rain and north-east winds had a great influence in preventing pollination is that two apple trees in our orchard proved an

exception to the general rule and gave us a fine crop of fruit. They were one crab apple tree of the Whitney variety and one Peach of Montreal apple tree. Those two trees were exceptionally well sheltered by large spruce trees standing as a wind-break for our orchard. For those two trees, that shelter prevented wind and rain from reaching them as badly as the other trees, and, consequently, helped the setting of their fruit.



In British Columbia even the boys are taught how to pack fruit. These boys attended a special class held at Vernon, B.C. Largely because of its uniform pack British Columbia fruit, after being shipped over 2,000 miles, realizes top prices on the markets of the East. Note article on Packing Schools, page 6.

## What Fertilizers to Buy

One dollar spent for acid phosphate will bring larger returns in increased crop yields than for any other kind of fertilizer at general market prices. This conclusion made by the Ohio Experiment Station is given after more than 20 years' investigational work.

Complete fertilizers—that is, those containing all three elements, nitrogen, phosphorus and potassium—are doubtful purchases to-day because of high prices for them. "Increases in crops produced by adding nitrogen or potassium to phosphate are likely to be worth less than the added cost of the fertilizer," the state experts say.

The same amount of money spent for raw rock phosphate, or floats, did not return as much as when expended for acid phosphate in one test at Wooster. Acid phosphate was used at the rate of 480 pounds in connection with eight tons of manure applied to corn in a four-year rotation of corn, oats, wheat and clover. The same money bought 768 pounds of raw phosphate rock.

The average yields per acre from acid

phosphate were seven bushels more of corn, three and a fourth bushels more oats and four bushels more wheat than from raw phosphate rock.

## Winter Control of Insects

Certain insects are more readily controlled during the winter months. In the provinces of Nova Scotia and New Brunswick fruit growers should collect the winter webs of the brown-tail moth. The law requires owners of properties infested with this insect to adopt control measures.

Throughout eastern Canada there is a widespread outbreak of the white-marked tussock moth, which may be serious next year. Fruit-growers and owners of shade trees should destroy as many as possible of the conspicuous white egg clusters in which the insect passes the winter. They can be scraped off the trees, fences, etc., or swabbed with creosote. Much injury next year will be prevented by taking such steps this winter and in the early spring before the buds burst.

\* Extract from an address delivered before the annual convention of the Pomological and Fruit Growing Society of the Province of Quebec, held at Macdonald College on December 4th and 5th, 1917.



## Apple Packing Schools

The Department of Agriculture of British Columbia has shown great interest in the question of apple packing in the province and in the past few years has held apple packing schools in all the fruit sections. The local administration of these schools is placed in the hands of a responsible body such as The Farmers' Institute, Fruit Growers' Associations, or Board of Trade. These associations must guarantee twelve pupils at two dollars each. The schools run for six days with five hours' work each day. In districts where it is impossible to secure the above mentioned number of pupils, a three-day course is held for a minimum of eight pupils at a fee of one dollar per pupil, to take six lessons of two and a half hours each. The Department of Agriculture provides a competent instructor, pays his expenses, supplies fruit, wrapping paper and packing tables. The applicants for packing school have to bear the expense of renting, heating and lighting of the hall. These packing schools have proved a great success. From among those who have taken the work, we have been able to get many skilled packers. This has enabled us to handle the increased tonnage without any loss. Many of the packers developed from these schools have been women and girls. Their work has been very satisfactory and will be a large factor in packing the crop of 1917. During the past winter courses in packing were held for school children fourteen years of age and older. The results accomplished by most of those who took the work were amazing, as the accompanying photographs will show.

## Apple Cedar Rust Controlled

Complete success in controlling cedar rust of apples by the eradication of the red cedars has been shown possible by representatives of the United States Department of Agriculture working in large commercial apple districts. Whenever it is desired to control apple cedar rust in an apple-growing community it can be effectively and permanently accomplished, the specialists say in a recent report, by destroying the red cedars in the winter.

Cedar rust still remains a serious disease in many localities, particularly where the orchards do not form a dominant part of the plant industry. While there are certain phases of this subject that require further investigation, the main problem may be regarded as being definitely solved.

Do not store apples in a potato cellar as they take up odors.

## LIGHT ON FRUIT PROBLEMS

Prof. A. W. Crow, O.A.C.

### Top Grafting.

I have a block of 66 peach trees in my orchard, five years old, that have turned out to be natural fruits. Would you advise me to graft new tops on these or cut them down?—A. L.

I doubt whether it would pay to undertake budding these trees. It could be done, but I should not care to advise it. You would probably be further ahead in the long run to plant new trees.

### Black Heart.

Will you please tell me all you know about black heart in apple trees? Do you think that Baldwin trees with this disease will recover?—C. B.

Black heart is a form of winter killing, and is very common in the Baldwin variety, even in the mildest parts of Ontario. Under these circumstances one is almost forced to the conclusion that Baldwin is scarcely hardy enough for the Ontario climate. This injury is very often induced and rendered much more serious, by the forcing of trees for strong growth. In reality, a Baldwin tree should on no account be forced, even if recourse has to be made to laying the orchard down in sod for a year or two occasionally. If the trunk and main branches are perfectly sound without wounds of any kind through which decay might have gained an entrance, I should favor leaving them, providing they are growing satisfactorily. Black heart will not kill a tree outright. So long as decay can be kept out the damaged wood simply dries up without any harm being done, but if at any point this injured wood becomes exposed to the air, decay is certain to set in. This means, of course, that it is much safer not to prune a Baldwin tree in its early years. If pruning is necessary, the wound should be covered immediately and thoroughly. It seems to me your only course is to leave the trees which appear sound and healthy and replace the others as fast as they begin to show signs of failing health.

### Grafted Apple Tree.

I put two grafts in the stump of a dead apple tree, which both lived. I cut one out. The other is a fine tree but does not bear yet. It is 9 years old now. Does it need grafting again?—F. E.

Concerning your grafted apple tree would say whether or not it should be grafted again depends on where you got your scion. If you took this scion off a tree of good variety, the fruit produced by this graft will be the same as the original tree. If, however, the graft was taken from a wild tree or from a shoot coming from the root of another tree, the probability is the pres-

ent tree would require to be grafted again in order to bear good fruit. In that case you would use a graft (or scion) from whatever kind you wish to grow.

### Pruning Cherry Trees.

I would be glad to receive information regarding pruning cherry trees. I have two cherry trees about ten or twelve years old, which were practically barren of fruit last season except on the tip where the birds alone could reach it. I removed the interfering and interlacing boughs, clearing the centre of the trees and opening the top by reducing the height, working on the assumption that access of air and light was necessary before the tree could be expected to bear fruit. Would you kindly inform me whether the trees would benefit or suffer as a result of my action, and should it happen I had been too reckless what symptoms should I be prepared to find. The wounds of course have been painted over.—J. E.

You do not state whether the cherry trees are sweet or sour. Sweet cherry trees seldom need much pruning, as they grow naturally quite open to sunlight, although with age they tend to get tall, sometimes necessitating the removal of the central leader. Sour cherries seldom require heading back of branches, but do often require thinning out of small branches. I do not consider the removal of these small ones which crowd each other is in any way detrimental, although it should not be carried too far. Your trees should not suffer permanently from the treatment they have received, and if they have thrown out numerous crowded shoots, which result usually follows too much pruning, all that can be done is to thin out somewhat and allow the balance to remain without treatment.

### Orchard Cultivation.

Would you kindly send directions for apple orchard cultivation?—C. R.

Begin cultivation as early in the spring as the land is ready to work, and continue until about June 15th. The spring cultivation can be started by ploughing or disking if land is light. If the land is in sod, it would be wise not to plough deep—four inches would be as deep as one would dare go. Ploughing should be followed by disking, or harrowing, so as to put the land in good condition, and this cultivating should be repeated at intervals of not less than ten days until about June 15th. Our practice is to sow a cover crop such as rye, rape, buckwheat or a mixture, at the last cultivation, which is plowed down in fall or early spring.

### A Neglected Orchard.

My orchard has been neglected for several years and I may not be able to prune it in the spring. Would it injure the orchard seriously if I pruned it in June?—H. S.

Light pruning of these trees in June would not be objectionable, but if the trees are in a condition which necessitates heavy pruning, I should advise against doing the work in June. If a moderate pruning out could be given this season, and the job finished next spring it would prove more satisfactory than heavy June pruning.



# Do You Water Your Plants Correctly?

Charles Barton, F.R.H.S., Cedar Springs, Ont.

**I**N greenhouses and rooms it is important to bear in mind that the water applied to plants should be of the same temperature as the air of the greenhouse or the room. For greenhouse plants a tank, capable of holding sufficient water for a day's supply at least, should always be used. Each day, after watering, the tank can then be filled, and the water will be ready for use the following day. In hot-houses, where tropical plants, including orchids, are grown, it is essential that water of the same temperature as the air of the house should be used. In rooms it is an easy matter to add a little hot water to the supply to take off the chill.

## When to Water.

To ascertain when a plant needs water, rap the side of the pot with the knuckles or a stick. If the sound produced be dull no water is needed; if clear and ringing, water is needed. If a plant by any means becomes very dry and its foliage droops, do not water in the ordinary way, but immerse the pot in a vessel of water until the air bubbles cease to rise from the soil; then place it in the shade and syringe the foliage.

Room and window plants are best moistened by immersion. The common practice of giving a room plant a little water daily is a great mistake. It only moistens the upper surface of the soil, leaving that below, where the roots chiefly are, more or less dry. By immersing the soil and pot, both are equally and thoroughly moistened, water is required less often, and the plants flourish all the better.

## How Often to Water.

No hard and fast rule can be laid down as to how often a plant should be watered. Generally speaking, bulbous plants that are dormant, and plants that lose their foliage in autumn, require no water until new growth begins. Newly-potted bulbs need no water when first potted. If water were given then it would remain stagnant in the pores of the soil, prevent air having access to the base of the bulbs and the formation of healthy roots. The soil contains ample moisture until roots form, and they can absorb moisture to take in food for forming new tissues. In the same way newly-potted plants do not require so much water as established ones. Again, plants that make free growth, such as geraniums, fuchsias and cinerarias, will take more water

than slow growing ones like heaths, cacti and orchids. Plants that have soft foliage require more moisture than those with hard leaves. Moreover, plants growing in a dry atmosphere and a sunny greenhouse transpire more than those growing in a moist and shady place, and hence require more water. In watering plants in pots, always give sufficient water to fill the space from the top of the soil to the top of the rim of the pot.

## Value of Rain Water.

The practical value of rain water has long been known to those who grow window plants. Cultivators have learned by experience and observation that plants flourish better when supplied with rain water than with water from a tap or a well.

Water in ponds is collected from springs in the earth or from drainings from the surface. Although originally derived from rain, it generally contains less nitrogen than rain water, but more mineral matter in solution. It is, therefore, often richer in plant food than rain water, but, owing to its resting on the earth, it is lower in temperature than rain water, and not so beneficial to plant growth. If such water could be placed in tubs or tanks above the earth's surface or in a greenhouse for a time, to regulate its temperature with that of the open air or the atmosphere of the greenhouse, then it would be beneficial to plant growth.

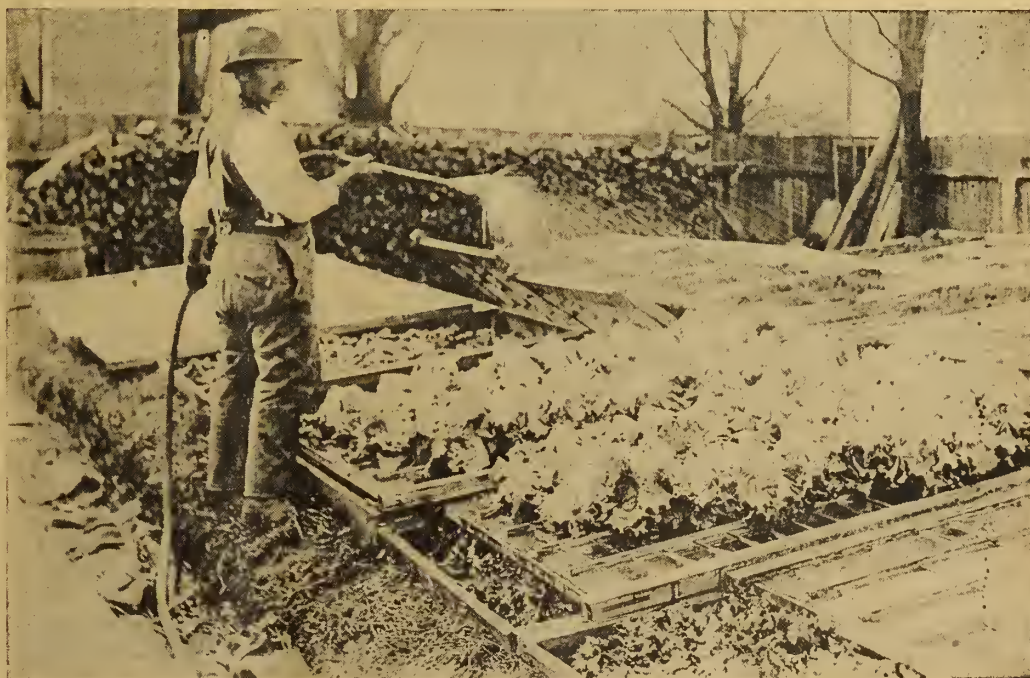
Spring water derived from wells or

supplied through taps from reservoirs, often contains more lime than is good for plants. Such water is described as "hard water," and this, if applied to heaths, azaleas, rhododendrons, and plants that dislike lime, is decidedly harmful. Plants never thrive so well when spring water is applied as when rain or prepared pond water is used. Spring water is very cold, and when used very freely it lowers the temperature of the soil, causes radiation of the heat therefrom, and chills the roots. Gardeners endeavor to overcome the disadvantages of the presence of lime in water by neutralizing its effects by adding an alkali, in the shape of a quarter of a pound of common soda to thirty-six gallons of water. After a few days water so treated becomes "softer" and less injurious to plants. On the whole, therefore, rain water is the best for general use. Failing this, pond water, exposed to the air and warmed to the temperature of the open air or the greenhouse, is the next best form of water to use. Spring or tap water is the least desirable, but if it must be used then see that it is warmed and softened in the manner indicated.

## The Logan Berry in Manitoba

J. A. Neilson, Manitoba Agricultural College

Mr. J. M. Logan, of 504 Greenwood Place, Winnipeg, has succeeded in producing what is believed to be the first crop of Logan berries ever grown in Manitoba. The plants were set out in the spring of 1915, and have since made a remarkable growth, some of the canes being fully six feet long. The



Have you all your arrangements completed for starting your hotbeds and cold frames? This illustration shows lettuce just cut by W. Tregunno, Bartonville, Ont., being washed for market.



bushes produced a quart of fine fruit during the past season.

The Logan berry is supposed by some to be a hybrid between the Aughinbough blackberry and the Antwerp red raspberry. Others, however, contend that it is not a hybrid but a distinct species. The fruit is like the blackberry in shape and size, and is the color of the red raspberry, with a flavor that it is a combination of both. It is cultivated in Washington, Oregon, and British Columbia, and from these

places considerable quantities are exported—chiefly in the form of dried fruit. The fruit is also used in the manufacture of syrups for the soda fountain and ice cream trades.

We hope that this fruit will be found sufficiently hardy for the climate of Manitoba. If it can be demonstrated that Logan berries will grow successfully in this province, it will be a big factor in solving the problem of the small fruit supply for Manitoba.

## The Care of House Plants

M. J. Eaton

**T**HERE are three main reasons why plants in homes do not do as well as in the greenhouse: first, insufficient light, and second, insufficient circulation of air.

House plants may be divided roughly into two classes: those which require warm treatment and those which do best in a cool atmosphere. To the warm class belong such foliage plants as palms, ferns, and rubber plants, which do fairly well under shady conditions. To the second class belong the geraniums, primulas, cyclamen, cineraria, freezias, and the most of the bulbs. These are flowering plants, and require sunlight to bloom well. Sun heat is natural heat and will not harm even the cool class of plants.

One of the faults of many amateurs is overcrowding. Foliage plants can be crowded without receiving much harm, but flowering plants need abundance of sunlight all around, or they will stop flowering or develop one-sided.

### Watering.

"This is a matter that most amateurs know but little about. The amount of water to be given and the frequency with which it should be applied depend upon the character of the plant and the atmosphere of the house. Examine the plants in the morning and test the soil with the finger. If it feels damp the plants do not require watering. If rather dry set that plant aside for watering. Take those requiring water to the sink or bath and set level. A well-potted plant will have the soil a little below the edge of the pot, leaving a shallow space sufficient to hold enough water to saturate the soil. Fill this space with water and leave to drain well before returning to the jardinières or saucers. If replaced at once the surplus water drains into the dish and you will have the roots of the plants in standing water. In the afternoon make a second tour of your plants and water those which seem as

though they would need water before next morning.

There is practically no atmospheric moisture in living rooms, and without it plants, especially high temperature plants, cannot be expected to thrive. To supply atmospheric moisture is a difficult matter; but it can be done, and the human occupants of the room will benefit as much as the plants.

Most city houses are heated by steam or hot water. Evaporating pans can be obtained which lie close to the side of the radiator, between it and the wall. It is astonishing how much water evaporates in a short time. Some of the newer heating arrangements have "humidifiers" to serve the same purpose. Another simple way to supply humidity to the atmosphere of a room is to go over the carpet with a watering can with a fine spray.

### Airing Plants.

The question of airing presents a difficulty, especially in cold weather. The windows where plants are cannot be opened, yet the air in the room must be changed often. This must be done

in some indirect way by opening windows and doors in another part of the house in such a way as to cause a circulation of air through the room.

In potting plants the florists put in the best of soil, but the bulk of soil in a pot is small, and the food becomes exhausted from time to time, and must be replaced. When you notice that a plant has stopped growing or is not looking well, buy some commercial fertilizer. If soluble, put it in the watering can; if not, work it into the surface of the soil.

### Insects.

With a miscellaneous collection of plants you will be sure to have green fly in the cool class, and possibly black fly. To control these two, dip or spray with nicotine. This can be bought in bottles from the seedsmen. Small plants can be held upside down and submerged in the solution. Larger plants must be sprayed. You will be sure to have red spider and thrips on the palms. The easiest way to control these is to sponge the plants thoroughly, especially the under side of the foliage, with good soap suds once a week or fortnight. While sponging for red spider and thrips you get rid of scale and mealy bug at the same time. You may also have white fly. If so, find out what is the white fly's favorite plant (probably a fuchsia) and get rid of that plant. If white fly appears in the greenhouse, use the following solution to each 1,000 cubic feet: one-quarter ounce potassium cyanide, one-half ounce sulphuric acid, one ounce water. This mixture is dangerous, and must be used with care by an inexperienced person. Do not attempt this treatment in a conservatory connected with the house, as the fumes are deadly.

## Chinese Gardening Methods

John E. Bartlett, Okanagan Landing, B.C.

**T**HE Chinese control the market gardening industry in British Columbia. For instance, on Sea Island, six miles from Vancouver, they cultivate sixteen hundred of the three thousand acres of tillable land. They own none of this. They rent on short lease, paying from fifteen dollars to thirty dollars an acre.

I recently visited a Chinese farm on Sea Island. It was probably the largest in the district, containing one hundred acres. It was worked intensively, and on much of the land two, and perhaps three, crops were grown during one season. The acreage in staple vegetables—potatoes and cabbage—was not

more than thirty-five per cent. of the whole.

Ten men were constantly at work. There were four horses, a small flock of hens and a few pigs. But the most astonishing thing was the small investment in depreciatory equipment. The buildings, mere shacks, cost less than three hundred and fifty dollars. They sheltered the laborers, the live-stock, the wagons, implements and vegetables in storage. The Chinese gardeners are slow to adopt labor-saving machinery. Such a common piece of machinery as the potato digger is ignored by them.

Eleven hundred dollars would cover



the entire cost of outfitting this hundred-acre farm.

### Cheap Labor.

A species of thrift, almost akin to penury, and cheap labor, are largely responsible for the Chinese monopoly of the British Columbia market gardening industry. Thrift manifests itself in the limited equipment referred to, in meagre living, in utilization through pigs and poultry of waste products. Industry is a conspicuous trait of the Oriental gardeners. I have seen them repeatedly start work at five o'clock in the morning and knock off at half-past eight in the evening. They work, if allowed, seven days a week. The Sunday Observance by-law often has to be invoked in their communities.

"Oriental competition is most severe with respect to labor. I have to pay for what labor I employ at two dollars and fifty cents a day. What the Chinese pay has never been published. I believe it is less than one dollar a day."

The Chinese labor system is somewhat peculiar. It is impossible to determine the current wages paid ordinary workmen. The laborers in the market gardens are really indentured. Labor contractors bring the men over from China, paying transportation and head tax, and the immigrants are put out on Chinese farms to work off their indebtedness. Should they endeavor to escape their obligation the vengeance of the tong pursues them. There is reason to believe that some Chinamen in the market gardens are in a condition similar to servitude through a large portion of their lives.

To this cheap labor, perhaps more than their industry or thrift, may be attributed the hold the Chinese have on the vegetable industry. There is much competition among the Chinese themselves, and prices are lower in Vancouver than they probably would be if the whites were to handle the business. The Chinese farmers have their own delivery wagons. They sell to hotels, restaurants, groceries, and to private houses.

### An Expert's Opinion.

John Walsh, of Steveston, B.C., is an expert gardener whose produce, especially head lettuce and celery, is often featured by grocers. He says: "I cannot grow vegetables like the beet or turnips and make a profit, at the Chinamen's prices. I can, however, beat the Oriental with ease on any vegetable requiring a degree of skill in growing and marketing. The Chinaman is expert neither in culture nor grading. His supremacy in this province is purely for economic reasons."

On display at Vancouver stores Mr. Walsh pointed out to me many samples of inferior, badly graded produce sold by the Chinese.

In growing his crops the Chinaman uses no commercial fertilizer, but applies barnyard manure in tremendous quantities. This he buys for a dollar a load or less in Vancouver, and carts out during the winter months. He understands thoroughly the necessity for constant cultivation. For some reason not understood by the white gardener, whose practice is different, the Chinese grow the smaller vegetables in raised beds, that are invariably scrupulously free from weeds.

### Menace to Health.

There is a side to the Chinese farming question, not yet fully appreciated in British Columbia, which is bound, sooner or later, to become prominent. That is the relation of the Chinese gardener to the public health. Undoubtedly they are a menace.

"The Chinese resent hygiene," said Dr. Herbert Cox, who, commissioned by the Washington State Board of Health, spent two years in investigating conditions among the Chinese. "In their minds disease is a natural and rather-to-be-desired method of killing off some of the populace, so that those who are left may have more elbow room and more to eat."

Dr. Cox declared further that ninety per cent. of Orientals are infected with intestinal diseases. "There are some fifteen different forms of intestinal parasites common to the Oriental. The Chinese infected with these parasites engage largely in market gardening or the restaurant business, the two best methods of transmitting the disease."

"I have seen Nelson Chinese," said Dr. Wolverton, "gathering old berry boxes from garbage cans for the purpose of refilling. Anyone with a knowledge of the Chinese knows that they didn't disinfect them before use. Such practices as these may have been responsible for epidemics which have passed over this city in recent years." Medical health officers throughout British Columbia exercise a more or less stringent supervision over Chinese market gardeners, but the protection thus afforded cannot be considered sufficient. The Chinaman, who is not averse to unsanitary methods, rather favors them if they constitute short cuts.

There has been very little agitation against the Chinese market gardeners. The number of white gardeners is so surprisingly small that their protest is as a voice in the wilderness. At one time a boycotting plan was tried in Delta. Farmers bound themselves to rent no land to Chinamen, but the crusade was short-lived. They say now in that locality that one of the prime workers in the movement was the first to break the agreement and "yellow" his land.

Sometime, however, British Columbia will have to deal with the Chinese monopoly of the market gardening industry. What line of action it will be wise to adopt has yet to be determined. The longer action is delayed, however, the more difficult the problem will be to solve.

Jardinieres in which water is allowed to stand make good graves for house plants. Keep them free of water if you want healthy plants.



The splendid work that is being done by the C.P.R. in the improvement of its station grounds is illustrated by this garden at Markdale, Ont. A special article relating to this work appeared in last month's issue of *The Canadian Horticulturist*.



# The Canadian Horticulturist

COMBINED WITH

## THE CANADIAN HORTICULTURIST AND BEEKEEPER

with which has been incorporated  
The Canadian Bee Journal.

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THE CANADIAN HORTICULTURIST,  
PETERBORO, ONT.

## EDITORIAL

### A Protection for Shippers

The United States Department of Agricul-  
ture has inaugurated an inspection service  
which promises to prove of great value to  
fruit and vegetable growers. For years,  
growers living at some distance from their  
natural markets, who have sold any con-  
siderable portion of their crops by consignment,  
have been largely at the mercy of the  
operators. This has been because there  
has been no check on the operators as re-  
gards the reports they have made the grow-  
ers concerning the condition in which their  
products reached the market. Unscrupulous  
dealers have not hesitated to abuse this  
power. Many law suits have resulted. The  
condition has been and still is an unsatis-  
factory one for the growers.

Last August the United States Govern-  
ment passed the Food Production Act. This  
act authorizes the Secretary of Agricul-  
ture to investigate and certify to ship-  
pers the conditions as to soundness of fruits  
and vegetables and other food products  
when received at the important central mar-  
kets. Rules and regulations for carrying out  
this provision of the act were published  
October 31, and the inspection service was  
inaugurated promptly in twenty-four of the  
large markets. This impartial and disinter-  
ested inspection service will, the Govern-  
ment believes, lessen the uncertainty sur-  
rounding the marketing of perishables and  
stimulate economical production.

For some time inspections will be made  
mostly of cars of produce concerning the  
condition of which there is some dispute.  
Applications must be made by the shipper  
or his authorized agent and may be made  
by telegraph, telephone, letter, or in person.  
Applications must contain a complete de-  
scription of the shipment, including the  
name and address of the shipper and re-  
ceiver, car number, initials and routing, con-  
tents, and the particular condition concern-  
ing which inspection is requested.

Inspectors will certify as to the condition  
of fruits and vegetables only. No charge  
will be made for the service. An inspection  
certificate will be issued regarding each car  
or lot inspected and the original delivered  
or mailed to the shipper or his representa-  
tive. Upon request of the shipper or his re-  
presentative all or part of the contents of  
the inspection certificate will be telegraphed  
to him at his expense. The results of this  
innovation will be watched with interest on  
both sides of the line. Should it prove suc-  
cessful the inevitable result will be that  
there will be demands soon for an extension  
of the service to cover many other lines of  
produce.

### Strenuous War Financing

The Victory Loan was a great success, for  
which we are all thankful. Nevertheless,  
we should not overlook the fact that it repre-  
sents a form of national or international  
financing which cannot be continued for  
long without disastrous results.

In times of peace the people of Canada  
exchange their surplus products for the sur-  
plus products of other countries. Very little  
cash is used in these transactions. The war  
has changed all this. The Allies have no  
surplus products which they can send us as  
payment for ours. Nor have they enough  
money to meet their requirements. We are,  
therefore, in effect, sending them our pro-

ducts and receiving our own notes in ex-  
change. This is how it is done. The Cana-  
dian Government loans so many millions of  
dollars to the Allies. We in turn loan that  
money to our Government when we buy Vic-  
tory Bonds. Our Government then uses the  
money we loaned it to pay us for the pro-  
ducts we ship to the Allies.

Naturally, this form of financing cannot  
continue indefinitely. With production be-  
ing maintained only on this side of the  
water, the value of products will increase  
rapidly, and, unless great care is taken, peo-  
ple ere long will begin to lose confidence in  
money as a medium of exchange. It all  
serves to show that we are living in  
troubled times, as well as the need for  
production of food products being main-  
tained at our maximum capacity, if a break-  
down of our whole financial system is to  
be averted.

### War Time Responsibilities

The war has given fruit and vegetable  
growers as well as farmers the greatest re-  
sponsibility, the greatest privilege and the  
greatest task any class of men has ever  
known. It is the American producer who  
may make possible the continuation of the  
war to a successful issue. Without an ade-  
quate food supply our armies are certain to  
fail; with it they may be able to stay in the  
field until the food supply of the Central  
Powers is exhausted. Thus, in a very real  
sense, the war may be won or lost in the  
fields, gardens, pastures and hog-lots of the  
North American continent. Without suffi-  
cient food for our men, all the aeroplanes, the  
guns, rifles and shells which are being  
manufactured are useless. This must be  
understood by every man, woman and child  
in the country. With food we can win the  
war; lack of food may lose the war.

The immediate necessity is to get food  
overseas. Our efforts should all be directed  
to this purpose. The producer and the con-  
sumer within the country should work to-  
gether for the common cause.

The rapidly dwindling world supply of  
food stuffs emphasizes in a very emphatic  
way what has already been impressed upon  
us that the producer this year once  
more must put forth his best ef-  
forts to produce the greatest possible quan-  
tity of foodstuffs. By the producer we mean  
not only the farmer who owns from forty to  
a thousand acres of land, but also the urban  
dweller who has but one vacant lot at his  
disposal. Every available foot of land  
should be devoted to production. Make use  
of all available manure and fertilizers. If  
properly used they will increase the yield  
by a large percentage and will more than  
pay for themselves. Surely we owe it to  
our soldiers to make our land produce its  
utmost in order that their work and sacri-  
fice may not have been in vain.

But the agricultural problem means not  
merely the production of foodstuffs and live  
stock. It means the conservation of the  
food after it is produced. Everyone, there-  
fore, has a part to play in the agricultural  
problem of to-day. You may be a producer;  
you are a consumer. As a consumer, it is  
your part to see that nothing goes to waste  
which may free imperishable products for  
shipment to our gallant troops. We all  
have our special responsibilities. Some are  
called to march away with uniform and gun,  
others have a part in the organization and  
administration of our war supplies, still  
others must produce the food wherewith to  
feed our armies and those of our allies;  
but to all, every man, woman and child,  
comes the call to save.



## Favors The Horticulturist

Brampton, Oct. 30, 1917.

The Horticultural Publishing Co., Ltd.

Dear Sirs:

Believing that it is in the interests of horticulture throughout Ontario, I have no hesitation in recommending The Canadian Horticulturist to any horticultural society. Its issues have always proved exceedingly attractive and beneficial to our Brampton Society.

It has been the opinion of our directors that while suitable premiums in the way of bulbs and plants should be given each, it was also highly important that an educational campaign should be carried on, and in our opinion, that this was best secured through The Canadian Horticulturist.

(Signed), J. E. COOPER,  
Director.

## Fruit Not a Luxury

Editor The Canadian Horticulturist:—I note in your December number your editorial, "Fruit a Luxury," and regret that through the uninformed press, as you point out, so much publicity has been given in this connection to the rulings of some of the misinformed military tribunals. People could live without fruit, and in this sense fruit is not strictly necessary, but the usefulness of fruit in a dietary is, nevertheless, beyond question. Perhaps the most authoritative statement with reference to this matter is that credited to Herbert C. Hoover, Food Administrator for the United States, who, when referring to the suffering occasioned in Belgium by nutritional diseases, stated that "Fruits are absolutely necessary as a war diet." Mr. Hoover's extensive and very intimate experience as Food Administrator for Belgium renders his opinion most valuable.

Mr. Hoover's ruling with respect to the importance of fruits in the United States is expressed in a sentence I quote from a telegram sent by Mr. Hoover to the Citrus Protective League of California, dated November 27th last. This telegram is published in the Sunkist Courier for December, 1917, the sentence referring to fruits reading as follows:

"Perishable fruits and vegetables are considered by food administration essentials as substitutes for condensed foods badly needed for export."

It seems to me Mr. Hoover's attitude on this point is entirely correct and thoroughly accorded with the best information we have relative to the maintenance of public health.—J. W. Crow, O.A.C., Guelph.

## Flowers at the Front

In Hospital No. 2,  
Canadian C. C. S.,  
Somewhere in Belgium.

Editor The Canadian Horticulturist:—Being sidetracked for a few days in hospital with a pain in my pinny that does not suffice to keep me out of mischief, I thought you might be interested in learning what a single unit here has accomplished along the line we horticulturists have encouraged for many years. Noting that the men had at times considerable idle time on their hands, Col. J. E. Davey, of Hamilton, the officer commanding of this unit, arranged for vege-

table and flower seeds to be distributed, and offered in prizes 200 francs for the best results. I was unfortunate enough to mention to the officer commanding that I knew something of flowers and vegetables, and was promptly commanded to act as judge to award the prizes. Through the kindness of the Toronto Horticultural Society I was able to award three of their silver and two of their bronze medals for the best gardens, etc. I enclose a photo showing the splendid garden in front of the main hospital receiving buildings. It was the best effort I have seen in all the British front, and that it was made by some of our Canadian boys did not detract from its enjoyment by everyone.

What it meant to our wounded and to the large staff of doctors and sisters to have fresh vegetables for so many months can be estimated when it is known that over three tons of fresh vegetables, etc., were grown in the spare time of the men.

W. G. MacKENDRICK, Lieut.-Col.

Note.—The list of vegetables grown by the men, that was enclosed by Lieut.-Col. MacKendrick, who, by the way, is a past president of the Toronto Horticultural Society, and a very successful amateur rose grower, recorded the following results: Radishes, 69 bundles of about 20 per bundle; lettuce, 282 bundles, of about 40 heads per bundle; potatoes, 3,313 lbs.; carrots, 1,026 lbs.; beans, 745 lbs.; turnips, 444 lbs.; beets, 1,369 lbs.; onion, 191 lbs.; cabbage, 1,165 heads; marrows, 219, including five of over 20 lbs. each; cucumbers, 68; greens, sprouts, 220 lbs.—Editor.

## SOCIETY NOTES

### St. Catharines

The St. Catharines Horticultural Society held its annual meeting Monday, Nov. 6th. About 820 members were enrolled on the books, the largest membership with one exception in the history of the society. The President, in his address, remarked that two

exhibitions had been held during the past summer, both of which were highly successful. At the July exhibition, prizes totalling \$227 were given; at the September exhibition, prizes worth \$330 were given. Aster seed was distributed in the various schools, 2,308 packages being given. For these small packages, the children paid one cent per package. This interested everyone and was the means of causing the children to take better care of their garden.

The Treasurer's report showed the society to be strong financially. With a total debit of \$2,985 and a total expenditure of \$2,678, the society has a balance on hand of \$307, with which to begin the new year.

The following officers were elected for the coming year: President, Mayor W. B. Burgoyne; First Vice-President, W. H. C. Nicholson; Second Vice-President, Dr. Ratcliffe; Third Vice-President, R. G. Carefoot; Board of Directors—Jas. A. Wiley, A. H. Hounsell, C. M. Gibson, J. A. Abbs, J. T. Petrie, E. Austin, E. Gander, Miss Jessie Douglas, Miss E. Francis.

Last year many members of the society planted rose bushes late in the fall. These came through the winter in excellent condition and bloomed beautifully this year. Everyone was very enthusiastic over them, so the society decided to give rose bushes as an option again this fall. It is significant that a majority of the members chose roses.

### Ottawa Vegetable Growers

The annual meeting and banquet of the "Ottawa Branch," Ontario Vegetable Growers' Association, was held in December. There was a record attendance of market growers. The secretary's report showed that the Ottawa gardeners had been successful in crop competitions. The surrounding townships gave grants to encourage these competitions. Summer visits to local gardens proved highly educational.

The election of officers resulted in a reelection of past officers: W. H. Stewart, president; Wm. Frick, vice-president; H. L. Bailie, provincial delegate; H. P. Corstesen, Wm. Hull, Jas. McKee, Jas. Cose, T. M. Mulligan, W. B. Moulds, directors; A. V. Main, Ottawa, secretary-treasurer.



A Prize-Winning Garden Maintained by Canadian Soldiers at the "Front."  
Photo sent by Lt.-Col. W. G. MacKendrick. Note article on this page.



# Quebec Fruit Growers Review Year's Work

THE members of the Quebec Pomological and Fruit Growing Society, who attended the annual convention, held December 4th and 5th at Macdonald College, were imbued with the spirit of progress. The president, Prof. Lochhead, in a review of the fruit situation in Quebec during the year 1917, remarked that the Province had had about one-half of a normal crop. The prices, however, were high, No. 1 McIntosh selling for as much as \$9 a bbl., wholesale. Growers generally were satisfied with conditions. He also called attention to the remarkable development of the government nursery at Berthierville. This nursery, which was started only a few years ago, is now the source of a large part of the apple trees used in the province. At this nursery there are also many thousands of deciduous and evergreen seedlings, which are hardy enough for use in cold regions such as Quebec.

During the past season Quebec fruit had to compete with large shipments of fruit from Oregon and California. This was due to an extensive advertising campaign carried on by the Co-operative Associations of those States. Prof. Lochhead maintained that Quebec fruit growers would find a larger market for their product (and there is none better produced in Canada) if they would do a little more advertising. He also drew the attention of the fruit growers to a bulletin published by the Utah Horticultural Station on the "Freezing of Fruit Buds." This bulletin, he believed, should be in the possession of every fruit grower in Canada.

## Officers Elected.

The following officers were elected: President, T. A. Raymond, St. Valier; Vice-President, Mr. Slack; Secretary-Treasurer, Peter Reid, Chateauguay Basin; Directors—C. B. Edwards, Covey Hill; J. R. Marshall, Abbotsford; G. P. Hitchcock, Massawippi; T. A. Raymond, St. Valier; Abbe Levesseur, St. Anne De La Pocatiere; Mr. Talbot, La Durantaye; Rev. Father Leopold, La Trappe; Robt. Brodie, Montreal.

Dr. Harrison, principal of Macdonald College, in welcoming the association, pointed out that production is now one of the greatest problems before the country. It would be false economy, however, to neglect the orchard. It would take too long to catch up again with the spraying and pruning. Our markets demand only a No. 1 fruit. This cannot be produced in an orchard where spraying and pruning are neglected. The men in training camps prefer fruit juices to prepared drinks. In the past grape juice has been used for this purpose. There is no reason, however, why cider could not be used to as great an extent as grape juice.

Dr. Chapais, of the Quebec Department of Agriculture, gave an interesting address on the "Causes of Fruit Blossoms not Setting in 1917." He showed that the prevailing weather during the months of May and June was cold and wet. The maximum temperature during these two months was about 66 degrees F. Quoting from a bulletin by Mr. W. T. Macoun, of Ottawa, he pointed out that fruit blossoms do not set well under 70 degrees F., even though the air be dry. It was brought out in discussion that bees were quite inactive during these two months. The bees worked only from seven to twelve hours during this whole period. Prof. Bunting remarked that apple

blossoms are not fertilized through the agency of the wind; only bees and the larger insects are capable of doing this work. Fruit growers who did not have bees in or near their orchards reported an extremely low set of fruit. Those who had bees near their orchards were more fortunate as many of them reported about 60 per cent. of a crop.

Dr. Hewitt, Dominion Entomologist, warned the fruit growers that they should lay in a stock of insecticides as soon as possible for the coming year. Insecticides, he said, are scarcer now than they were last fall. Many growers will remember the difficulty they had in getting these poisons last spring. If they do not lay in their stock this fall they will find that there will be no insecticides to get. The Quebec Government is taking measures to insure that the growers get this material. The supply, however, will be limited owing to war conditions.

## Experiments With Apples.

Mr. W. T. Macoun, Dominion Horticulturist, of the Central Experimental Farm, Ottawa, gave a summary of the results obtained by crossing different varieties of fruits at Ottawa. They have been working with apples since 1887, and have now some 750 named varieties and thousands of seedlings. It is their aim to produce fruits which will be hardy enough for Eastern Ontario and Quebec, and will have the keeping qualities of the Northern Spy and the flavor of the McIntosh or Fameuse. It has been found that all varieties which originated in England or in the Eastern States are too tender for this northern climate. Only those which originated in Canada, Minnesota, Wisconsin, and Russia have proved hardy at Ottawa. These varieties, however, all have a Russian origin. There are only two or three varieties of pears that have succeeded at Ottawa. These, too, are of Russian origin. While not of good quality, they are valuable for crossing with standard varieties to increase their hardiness and to make them proof against blight. Plums are also being tried out at the farm. No European plums have been found sufficiently hardy for this climate. The fruit buds are killed year after year by alternate freezing and thawing. The American plums, however, have proved hardy and sell at good prices on the Ottawa market.

## "Dusting" Experience.

"My First Experience in Dusting," was the subject of an interesting address by Rev. Father Leopold, of La Trappe. Father Leopold had no experience with dusting until last season. His results, however, were most satisfactory. He says that an orchard can be sprayed in less than half the time formerly required. This permits the spray being applied at exactly the right time. He does not advise growers to go indiscriminately into dusting their orchards, but wherever it is possible, he thinks they would do well to give dusting a good trial. One of the results of dust-spraying is that no branches of the trees are missed. The dust also controls the aphids better than does the liquid spray.

Prof. G. Saunders, of Annapolis Royal, N.S., pointed out that many fruit growers are now going back to the Bordeaux mixture in preference to lime-sulphur spray. In making the Bordeaux mixture, Mr. Saun-

ders recommends that ground lime and bluestone be used. The agitator in the spraying machine can be made to do the work which is otherwise accomplished by the overhead system of tanks or barrels. He would have the tank half filled with water and the bluestone put in. This should be stirred by the agitator in the machine. After two minutes fill the tank with water and add the lime. This will be mixed and ready for use within five minutes.

Mr. Harrington, of Madison, N.J., gave an illustrated lecture on "Iris and Lillies and their Culture." He described the many different types of iris and lily, their uses and methods of culture. Iris do best in a district where there is plenty of moisture, and where the temperature is not too low. They may be grown, however, in almost any part of America. His slides were beautiful, and a revelation even to flower-growers.

Prof. F. C. Sears, of the Massachusetts Agricultural College, gave a paper on his experiences in starting a fruit farm. He said that he had confidence in the fruit industry of America when he started and has had no reason to change his mind since then. He described a few of the practices in his orchard. He prunes his trees very lightly. After the first heading back, when the trees are planted he does not prune again for three or four years. He then prunes his trees so as to have a low head, and leaves more wood than is generally left in the tree. The majority of his trees are headed about two feet from the ground. Spraying and thinning, are practiced most systematically. In thinning, he leaves only one apple on each spur. In this way he gets nearly a full crop of fruit every year. In marketing his fruit he insists on having the apples carefully graded, whether for box or barrel. The care with which his fruit is packed has already reaped its reward. His fruit is well known on the local markets, where he receives the highest prevailing prices.

## Handling the Crop.

Mr. G. E. McIntosh, in charge of the fruit transportation for the Dominion, said the railways were up against a proposition this year which was never before known in the history of the fruit industry of Canada. In addition to transporting huge supplies of food and war supplies the railroads were called upon to move 500,000 barrels of apples from Nova Scotia to other parts of the country, and about 100,000 barrels from British Columbia to the Prairie Provinces. In the face of the shortage of cars this seemed at first almost impossible. The movement of fruit so far, however, had been satisfactory. The shippers co-operated with the railroads and loaded the cars to their utmost capacity.

## The Fruit Exhibit.

The exhibits of fruit were few, but very good. Although the color of the fruit was not up to the standard of previous years, the fruit was large and clean. The varieties were numerous, with McIntosh and Fameuse predominating. Many good samples of boxes and barrels were shown. The chief exhibitors were Messrs. Crossfield & Honey, of Abbotsford; Johnson, of Cowansville; Webber, of Hudson Heights, and Father Leopold, of Oka Agricultural College.



# Niagara District Notes

F. G. H. Pattison, Winona, Ont.

WHEN we consider that the last five years have been far from satisfactory on the fruit farms as regards financial returns, the response by our fruit growers to the request of the Minister of Finance to buy Victory Bonds was wonderfully good. The counties of both Wentworth and Lincoln made an excellent showing, as did also the City of St. Catharines. The objective of the township of Saltfleet was \$100,000. It raised over \$216,000.

The latter part of November, was very favorable for plowing and cleaning up generally, so that orchards and vineyards went into the winter in good condition. Apples and pears continued to move till the first week of December. Since then there has been but little doing. Some little pruning has been done, and several cars of manure have been distributed in the orchards. The high price and scarcity of sulphur is likely to have the effect of lessening the amount of spraying with lime-sulphur next spring. Baskets too, have gone soaring again, \$65 and \$75 per 1,000 being the estimated prices for 6-quart and 11-quart baskets.

In spite of the general shortage of apples a number of the orchards around Winona and Grimsby had a fair crop. One especially good orchard was that of Mr. A. Dunning, on the Grimsby and Queenston Road, a short distance east of Grimsby Beach. On this orchard more than 600 boxes of very clean and good-sized apples were marketed. Some of the apples measured 12 inches in circumference, and a number of them were 10 inches, and ran very even in size. Baldwins and Greenings were the chief varieties grown.

How were such fine apples obtained in this off year? Chiefly by extra attention to spraying. Three very thorough sprayings were given with lime-sulphur, to which was added arsenate of lead for the 2nd and 3rd sprayings.

The cost of spraying was \$150 or over, and Mr. Dunning had the great benefit of Prof. Caesar's instruction and help. The crop turned out over 600 boxes, which sold at from \$2.25 to \$3 per bushel box. The boxes were packed in fine condition, the

bottoms and tops being lined with corrugated paper, and the sides with plain building paper.

Mr. Dunning is of opinion that the extra care in spraying was what gave him his good crop of apples.

## Sets a Standard

I am highly pleased with The Canadian Horticulturist. The other day I was talking to two subscribers I obtained for The Canadian Horticulturist in the spring and they also were enthusiastic over the paper, and like myself, looked anxiously for its appearance every month.

This month's issue is great. The several articles are just the thing for lovers of flowers and vegetable-growers. "Storing Vegetables for Winter Use," by Allen of Toronto, is a timely article, so are all the others by Ross, Ferguson, Mrs. Potts, Tillett and John Gall. I greatly appreciate the illustrations contained in it every month. The articles provide a standard to work up to, in and around the lawn and flower beds. The two subscribers mentioned above said that they were going to do all they could to further the interests of The Canadian Horticulturist.—Jno. Taylor, Sydney Mines, Cape Breton, N. S.

Large quantities of pumpkins were delivered to the Burlington canning factory this season, by the local farmers and fruit growers. The supply this year was exceptionally large, and the quality above the average.

A report from Dundas says that a communication was recently received by the City Council from J. A. Kyle, secretary of the local horticultural society, requesting that action be taken to overcome the San Jose Scale and Tussock Moth menace which threatens to destroy many of the

shade trees and ornamental bushes in the town. Clerk Fry was accordingly instructed to communicate with the Government officials on this matter, with the view of having a Government inspector sent there to make an investigation.

Recent experiments with the pre-cooling of peaches for long-distance shipment conducted at the Government pre-cooling station at Grimsby, have shown that varieties such as the Yellow St. John, Early Crawford, and Elberta can be shipped successfully to almost any part of Canada from the Grimsby district.

The shortage of tin and the embargo placed on that metal by the United States Government, while too late to affect this year's pack of canned fruit and vegetables, may seriously affect next year's pack. If the shortage of tin continues to grow more acute, it may present a serious aspect before the next canning season arrives.

The Dominion Canners, however, are apparently doing everything in their power to meet the situation. They have distinctly given out that they intend to rebuild their Simcoe plant, which was the can-making plant of the company. In addition they are going to materially enlarge it so as to protect themselves from the danger of being unable to contract for cans.

A special meeting of the Niagara Peninsula Fruit Growers' Association was held in the court house, St. Catharines, in November last. The chief matters considered were: 1. The report of the basket committee. 2. The question of the employment of the National Service girls another season. President Fleming said that the Fruit Commissioner was arranging for a meeting in Ottawa of all the basket manufacturers to discuss this question. Growers in the Niagara District had agreed on an 11-quart basket  $\frac{1}{4}$  inch higher and with the flare considerably reduced. Collapsible baskets were exhibited made by Messrs. Lundy and Scott, of Niagara Falls, Ont., which attracted considerable attention. They are made of waterproof corrugated paper. It was decided that these packages should be submitted to the pre-cooling plant at Grimsby and reported on at the next meeting.

There being some difference of opinion exhibited regarding the standard basket,

# 1918

"LEST YOU FORGET"

# JANUARY

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
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**American Bee Journal**  
Hamilton - - Illinois

S. H. Rittenhouse, said that the object was  
to have two sizes standardized—the 6-quart  
and 11-quart—so that the different makes

might be interchangeable, which would be  
to the interest of all, both consumers and  
producers.

## Protection of Fruit Trees from Mice

[Experimental Farm Note]

THE annual loss of fruit trees in Canada  
from mice is great. Some years they are  
much more destructive than in others,  
while in a certain year they may be very de-  
structive in one part of Canada and do little  
or no damage in another. The scarcity or  
abundance of food, the number of mice  
which are in the vicinity when winter sets  
in, and the character of the winter all have  
an influence on the amount of injury which  
is done. Where the orchard is in sod or  
where there is rubbish about in which mice  
can harbor, the injury to trees, if left un-  
protected, is liable to be much greater  
than where the orchard has been under  
clean cultivation or even where a cover  
crop is sown the previous summer.

It frequently happens that orchards which  
have escaped much injury from mice for  
several years from the time of planting,  
will be badly injured, if not ruined, just  
when the first crop is expected. There is  
nothing more discouraging to a farmer or  
fruit grower than to have an orchard de-  
stroyed in this way after he has cared for  
it for a number of years. There must be  
many instances in Canada where farmers,  
after a loss of this kind, do not replant.

Although it is not every year that mice  
are troublesome, trees should be protected  
from them every year until about six inches  
in diameter; even a tree of this size will  
sometimes be partly girdled. If the pro-  
tection is neglected for one year, that may  
be the year when mice are very abundant  
and much injury will be done. The mice  
usually are looking for, or feeding on, seeds  
close to the ground under the snow, and  
when they come to a tree they are likely to  
begin to gnaw the bark if it is unprotected,  
and before they have finished the tree may  
be completely girdled to a height of twelve  
to eighteen inches above the ground. This  
usually causes its death, although it may  
remain alive for most of the summer follow-  
ing.

The cheapest and surest method of pro-  
tecting trees from mice is to wrap ordinary  
white building paper around the trunk of  
the tree. The paper is cut into strips which  
are the length of the breadth of the roll  
of paper, the width of the strips depending  
on the size of the tree. The strips should  
be just wide enough to lap over, as one  
thickness of paper is all that is necessary.  
The paper is wrapped tightly around the  
tree and tied in two places with twine. A  
little earth is heaped up about the base after  
the paper is tied, to cover any opening  
through which the mice might reach the  
trunk. Several thousand young trees are  
wrapped each year at the Experimental  
Farm in this way, and there have been  
practically no cases where the mice have  
gnawed through the paper to get at the  
trees. Tar paper is also effectual, but trees  
have been injured by using it, and it is well  
to avoid this, as building paper will do as  
well. A small mound of earth from eight  
to ten inches in height about the base of  
the tree will often prevent mice from injur-  
ing the trees. Snow tramped about the  
tree has proved quite effectual, but one can-  
not always depend upon it. Fine wire mesh  
wrapped around the tree, or lapped so that  
it will expand with the growth of the tree,

while more expensive at first, is very dur-  
able and will protect the trees well.

Mice may be poisoned by making a mix-  
ture of one part by weight of arsenic with  
three parts of corn meal, and putting it in  
runways made by nailing two pieces of  
board, each five or six feet in length and  
six inches wide, to make an inverted trough,  
and putting about a tablespoonful of the  
poison on a shingle near the middle of the  
runs, renewing the poison from time to  
time. Poisoning would, however, be found  
a rather tedious method for a large orchard.

Persons who intend to replace trees in  
their orchards, or to set out new orchards,  
should not leave this important business for  
the future. They would surely be disap-  
pointed. Next spring, fruit growers will  
probably be able to secure trees at only  
slightly higher rates than obtained previous  
to the war. If they wait for another year or  
two, they will have to pay higher prices, and  
will have a smaller list to choose from. As  
most of the stock comes from France, it will  
be many years before the situation rights  
itself and growers will again be able to get  
satisfactory nursery stock at satisfactory  
prices.

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Full colonies—Nuclei—pound packages.  
Queens of Canadian or U. S. A. stock. Three  
banded golden Italians.



## Care of Roots in Storage

**M**ANY tons of mangels, turnips and carrots are lost annually by neglect after being placed in storage. Everything may be done to insure a full crop and to harvest it at the proper time in good condition, yet, if not properly looked after during the winter months, a high percentage of this crop may become a total loss. Such loss can be prevented only by prompt attention to the details of storage requirements.

If a cellar is to be used for storage it should be thoroughly cleaned, the ventilators put into good working order, and thorough drainage and protection from frost assured some time before it is filled. Usually in filling cellars it is customary to dump the roots down through a trap door in the floor above, or roll them in over a shoot from windows at the ground level. No matter how much care is exercised in the performance of either of these operations, there will be accumulations of broken and bruised roots and earth at the ends of the shoots, or beneath the trap doors. Unless frozen, the broken and badly-bruised roots, in such a mixture will invariably rot, and by so doing generate heat that will help to spread the infection to the surrounding sound roots. It is therefore obvious that accumulations of this nature should be thoroughly cleaned out as soon as possible after the harvest has been completed, and the damaged roots fed before they have had a chance to decay.

Frequently, during the winter months, rotting will start among apparently sound roots, usually as the result of an unsound root becoming buried among the others. In-

fection spreads rapidly among roots in storage, and all such infected areas should be thoroughly cleaned out whenever detected.

All classes of roots lose a certain amount of moisture soon after harvest, by evaporation, or, as it is commonly called, sweating. If an adequate circulation of air among the roots has not been provided for, this moisture will condense and wet places will be formed which will favour the growth of moulds, and other plant life, which may directly or indirectly, cause rotting. It is, therefore, imperative that during the first few weeks of storage, and in fact whenever the outside weather permits, thorough ventilation be maintained.

### The Right Temperature.

The temperature in the cellar should be such that the roots will neither grow to any appreciable extent, nor yet freeze. From freezing to 40° F may be considered as the extreme range. It is an excellent plan to hang a thermometer in a convenient place in the cellar and consult it daily. If the temperature is above 38° F the ventilators should be opened and, when it drops sufficiently, closed. When the warmer weather of spring and early summer has set in it is advisable to keep the ventilators closed during the day and open during the night, so as to admit only cool air, thus keeping the cellar cool as long as possible.

If roots are to be pitted outside it is essential that thorough drainage is assured, either by choosing a location on sloping or sandy land, or by providing artificial drainage.

After the roots have been piled and the ventilators inserted the pile should be covered only with straw to a depth of about eight inches. Later in the season, when cooler weather has set in, about four inches of earth should be placed over the straw. Still later, when this earth has become frozen to a depth of about two inches, another covering of straw and earth should be made. When cold weather has finally set in the ventilators should be plugged with straw.

### Prevent Rotting.

If the pit has been properly constructed and covered correctly there is little danger of the roots rotting. As a precaution, however, it is advisable to hang a thermometer in every second ventilator and consult it occasionally. If the temperature in the pit gets higher than 45° F it is evident that heating is taking place, and the pit should be opened up and the infected area thoroughly cleaned out.

In the spring the layers of covering should be gradually removed, the ventilators opened and, generally speaking, the protection modified to suit the rising temperature.

An excellent hardy plum is the Omaha, which experiments at Ottawa have shown to be one of the best for that part of Canada, and, it is believed, for districts having a somewhat similar climate. This is a hybrid between the Japanese plum and the American and has combined in it the good points of both, being, like the American, hardier than the Japanese, but having the thin skin and firm flesh of the latter. The Omaha ripens about the middle of August, a time when there is usually a good market for plums.

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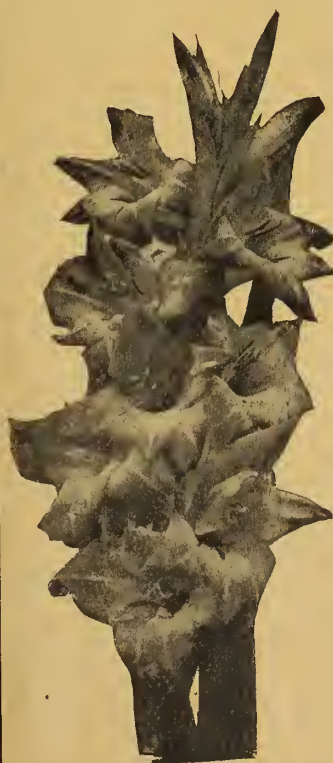
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## Poultry Feeding

**T**HE problem of economical production, with feed at the present prices, is a question that has been worrying producers during the past few months. The question of what to feed is one that requires more careful consideration than ever before. Feed is high, therefore the flock should be culled closely and nothing but the most vigorous birds retained. They should not only be fed heavily, but should be fed such feeds as will give results. For this purpose it is necessary to supply cereal, animal, vegetable and mineral feeds.

Cereal or grain feeds should form the principal part of the ration and for best results a certain proportion should be ground. The question is what are the best and most economical feeds to use. During ordinary times, a mixture of corn, wheat and oats is popular, but under present conditions milling wheat should be conserved for human food and only the lower grades used for stock feed. Lower grade wheat, oats and corn, buckwheat and barley, these are all feeds that may be used to advantage. The extent to which each is used will depend on prices.

For ground feed, "buckwheat screenings" may be used to advantage, also mixtures containing bran, cornmeal, ground oats or other similar grains.

Vegetable or green feed is absolutely necessary to keep the flock in thrifty condition. For this purpose, sprouted oats is one of the very best. It not only supplies succulence, but grain feed as well. Mangels, turnips, cabbage, small potatoes or other similar waste products may all be used to advantage.

Animal or meat feed is a form of food that poultry keepers frequently neglect supplying. It is not possible for a hen to produce eggs profitably on an all-grain ration. Sour milk is sometimes available and no animal feed will give better results, as it not only supplies the necessary feed, but it also keeps the birds in good tone. If milk is not available, beef scrap, blood flour, green cut bone or similar feeds must be supplied to take the place of the grubs and insects which the birds get on range.

Lime for the egg shells and mineral salts for the growth of bone must be supplied. Small quantities may be obtained from such feeds as clovers, but it is necessary to feed oyster shells or something similar to supply lime in sufficient quantities for a heavy egg production.

### Sample Ration.

**Morning**—A light feed of mixed grains scattered in a deep litter. **Noon**—Green feed, mangels, vegetable parings or sprouted oats. **Night**—Full feed of scratch grains.

The scratch grains should be a mixture such as lower grade wheat, oats and corn—barley, oats and corn—barley, oats and buckwheat—or whatever grains are cheapest at the time. So far this season, oats have been the cheapest grain food, so it is advisable to use them to as great an extent as possible.

The present indications are that corn will be greatly reduced in price. When this happens it should be used extensively, as, supplemented with a high protein feed such

as sour milk or beef scrap, it is one of the most valuable of feeds.

Besides the foregoing, a hopper of dry mash, such as ground buckwheat screenings three parts, blood flour, or beef scrap one part is kept constantly before the flock, also hoppers of oyster shell and beef scrap. If sour milk is available the beef scrap may be omitted or green cut bone may be supplied in place of either. A good time to supply this is at the noon feed when a mash made from the kitchen scraps in which is mixed the green cut bone, at the rate of about one-half ounce per bird and dried off with the meal mixture, may be fed.

Because feed is high in price, don't stint the flock. It takes a certain amount of feed merely for maintenance. It is only the feed over and above this amount that can be used for production, therefore feed and water liberally.

### Pullets vs. Old Hens.

For profitable early winter egg production the early hatched pullet is three times better than the late pullet, four times better than the yearling hen and thirty times better than the "aged" hen. Early pullets are best for winter eggs. This has been demonstrated many times. The Poultry Division, Experimental Farm, has collected figures for several years and when the three months (November, December and January) only are taken into consideration the relative profitableness of the four ages is as noted. If the six winter months were considered the contrast would not be so striking for the hens and the late pullets were just beginning to lay when the experiment closed. However, if eggs alone are to be considered we cannot afford to feed birds until towards spring before they produce. Even if desired for breeding it is a question if, with the high price of feed, we had not better rely upon the well matured pullet for hatching eggs next spring, rather than feed hens that will not produce or only at a loss. Certainly there is no excuse whatever for keeping in our poultry houses late pullets whose eggs cost more than they are worth and birds that are absolutely useless as breeders.

Early pullets (hatched before May 1st) produced eggs at a cost for feed of 18.3 cents. The late pullets (hatched after May 15th) at a cost of 56 cents. The year old hens at a cost of 78.2 cents, and for every dozen eggs laid by the hens in the aged class the cost of feed was \$5.73.

## Sydney Experimental Station

Excellent work is being done at the Experimental Farm at Sydney, B. C., conducted by the Dominion Government, the manager of which is Mr. R. L. Stevenson, B.S.A., formerly of Ancaster, Ont. An editor of The Canadian Horticulturist spent some hours on this farm last summer and found that much excellent work is being accomplished, although the farm was started only five years ago. It has been under the direction of Mr. Stevenson only since 1915.

The neat appearance of the buildings, fences, fields and roads, as one passes this farm on the electric railway from Victoria, B. C., makes a most favorable im-



pression which is increased by a visit to the farm itself.

As the southern and eastern portion of Vancouver Island produces large quantities of fruit considerable attention is being given to horticulture. In all twenty-three acres are devoted to horticulture, including fifteen used for landscape art and as an arboretum. There are also six acres of nut orchard. Special attention is being given to flowering bulbs, garden and vegetable seeds and to testing fruits. On the main farm the management expects to follow a four-year rotation of wheat, clover, corn, rye and peas. They are specializing in fall seeding.

## Annapolis Valley Notes

Eunice Buchanan, Berwick, N. S.

December was not a month conducive to much out door work. Even the woodsmen found the storms and snow-weighed branches difficult for working, added to this we have had zero weather.

The apple shippers have had to contend with a car shortage. Cars were promised which did not arrive, and then came the explosion at Halifax. Three hundred cars and twenty engines were thrown out of commission. The terminals at North Street and Richmond were destroyed, and 58 or more railway men were killed. In spite of the difficulty in obtaining labor, and the running of special relief trains, the train service gradually righted itself.

Most of the glass houses at the Nova Scotia Nursery were ruined and the dwelling house was burned to the ground.

Owing to the war, and hospital demands, there has been a good market for honey which was scarce. In some years it has been difficult to sell it for 15c a lb., but this year buyers paid 20c a lb. for it in wholesale lots.

## Locating Railway Delay

A far-reaching plan designed by the railroads, the transportation department of the Dominion Fruit Branch, and the food administration to conserve railway equipment and foodstuffs has been in effect for some time. Railroads entering Montreal and Toronto and a few other central distributing centres report regularly to G. E. McIntosh, Traffic Officer for the Fruit and Vegetable Committee, and in charge of fruit transportation, Department of Agriculture, every car of fruit, vegetables and other perishable foodstuffs which has been delayed 72 hours and over, either awaiting unloading or re-consignment or other disposition. In all cases reported by the railroads of undue

detention of cars loaded, an effort is made to fix the responsibility and then take such steps as may be necessary to remedy conditions and prevent a recurrence by the offenders.

The chief results which it is believed the new plan will accomplish are: The prompt unloading of cars containing perishable foodstuffs; the prevention of waste or loss of foodstuffs through deterioration because of undue detention in cars; the prevention of similar loss at shipping points because of lack of transportation facilities, owing to the undue detention elsewhere of loaded cars of perishable foodstuffs, and an increase in the amount of railway cars available for moving foodstuffs and other commodities necessary for the public national welfare. During the short time this plan has been made effective, absolute proof has been given that many cars are held by small dealers for storage purposes, while producers have been unable to move perishable products because of a car shortage.

## Testing Experiment

E. F. Palmer, Director, Vineland Station, Ontario.

A valuable part of the work of the Vineland (Ont.) Horticultural Experiment Station is to test out various new varieties put on the market by nurserymen and others, and to secure for testing promising seedlings or bud sports which often occur throughout our fruit-growing districts. The station is now preparing lists of new or noteworthy varieties not growing in the test blocks and in this regard the station would be very glad to receive from any reader of The Canadian Horticulturist names of any fruits which he thinks should be tested.

There are doubtless in your neighborhood also occasional seedlings or bud sports of various kinds of fruits which have attained at least local prominence but which are little, if at all, known outside of the district of their origination. Many of these seedlings and bud sports are worthy of a more extended trial. It would materially assist the Experiment Station if readers would furnish us with sufficient information concerning such seedlings, so that we could secure buds, nursery stock or plants as the case might be. Address correspondence to E. F. Palmer, Director, Horticultural Experiment Station, Vineland Station, Ontario.

## The Food Shortage

At the recent convention of the Quebec Fruit Growers and Pomological Society one of the members of the Association brought up the question of increased production. This occupied much of the time allotted for discussions. It was shown that there is a world shortage of food. It devolved on Canada and the United States to supply the necessary food stuffs, to relieve this shortage. Only imperishable goods such as wheat and bacon can be shipped satisfactorily to Europe. To supplement these two commodities fruit growers must do their part in the production of hogs, vegetables and fruit. The fruit farm has by-products which are not found on other farms. These could be utilized for pork production. Prof. Barton, of Macdonald College, emphasized the value of hog-raising as compared with other live stock. He pointed out that hogs may be raised more profitably, and more easily, and at the same time will provide meat much sooner than any other class of live stock.



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**THE FOSTER POTTERY CO., Ltd.**  
**HAMILTON, ONT.**

Mr. Dan. Johnson, Dominion Fruit Commissioner, outlined in part the policy of the Food Controller. He pointed out the absolute necessity of increasing our meat supply and backed up what Prof. Barton had said about hogs. No action was taken by the Fruit Growers' as an Association. The opinion of the members, however, was that it is not only their duty, but that it is also possible for them to raise many more hogs than they have in the past. Many signified their intention of devoting more time to this industry during the coming year.

### New Tests of Basic Slag

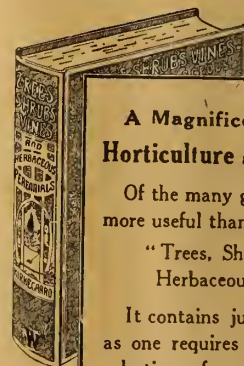
Mark Meredith, England.

**T**HERE is much difference of opinion upon the manurial value of basic slag, and upon the correct method of determining that value in any given sample. Since the function of the basic slag as a fertilizer is that of re-furnishing the soil with the phosphates absorbed by successive crops, it might appear that its value could be measured by the amount of the contained phosphates; but this is not necessarily the case, for the reason that not all the phosphates in basic slag are soluble in the soil. The standard of valuation adopted by German manufacturers has been the citric solubility test, in which the slag is subjected to a 2 per cent. solution of citric acid, and its commercial value appraised according to the amount of phosphates dissolved in a given time. With characteristic pushfulness, the Germans have succeeded in advancing the sales of their slag on the strength of this test, but it has never been conclusively shown that solubility in dilute citric acid had any close correspondence to solubility in the soil, or that there was any special virtue in fixing the citric acid solution at 2 per cent. strength. In their paper to the Society of Chemical Industry, Professors Gilchrist and Louis assert the contrary. They state that experiments with basic slags of high and low citric solubility, and of finely ground mineral phosphates which contain practically no citric soluble phosphates, at various experimental centres in the North of England, have shown that the percentages of total phosphates had practically no relation to the manurial results—and they contend that the total phosphoric acid content of basic slags is a more reliable test of their manurial value than the citric solubility test. This is a matter of great importance to British steel workers and to British agriculture. Judged by the citric solubility test, only slag obtained from the basic-Bessemer processes has a high enough manurial value to make its use as a fertilizer worth while. Basic-Bes-

semer slag contains up to 20 per cent. of phosphoric acid, and responds freely to the citric solubility test. Slag from the basic open hearth processes contains on the average only about 10 per cent. of phosphoric acid and responds only to a limited extent to the test. Now the great bulk of the basic slag produced in Great Britain is a by-product from basic open-hearth steel, and because of the acceptance of the citric acid test, only a small part of this slag has been deemed worth grinding up for manure; the rest has been thrown away. It is computed that the total amount of basic slag of all kinds now produced in Great Britain is from 800,000 to 900,000 tons, and of this probably no more than 300,000 tons is being converted into artificial manure. If, therefore, the conclusions of Professors Gilchrist and Louis are correct, another 500,000 or 600,000 tons of basic slag of substantive manu-

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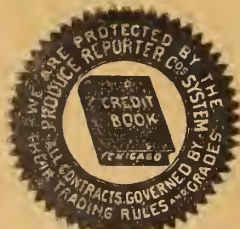
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References: The Canadian Bank of Commerce (Market Branch) and Commercial Agencies.





rial value is available for agricultural use. Investigations are now being made with the object of ascertaining whether high-graded mineral phosphates can be added to basic slag immediately it leaves the open hearth. If by doing so the slag can be enriched, a considerable addition to the home supplies of artificials will result.

## Will Control Potato Prices

Food Controller W. J. Hanna intends to prevent an advance in the prices of potatoes above the levels that have prevailed lately. In this connection he has issued the following statement:

A recent survey of the situation by this office indicates that there is still a large supply of potatoes in the hands of the growers and dealers, to meet a continuous and heavy demand until the 1918 crop will be available. All handlers of potatoes should understand the situation clearly, and realize that a special effort to keep the public plentifully supplied at reasonable prices is necessary, in order that no part of the large crop of the past season be wasted. Nothing can be gained by withholding supplies from the market, because higher prices will not be permitted, and any attempt in that direction will be dealt with at once by the Food Controller. The trend of the market is now towards lower prices, notwithstanding the recent severe weather which has made the movement of potatoes difficult. When spring opens it is anticipated that much of the surplus will come on the market.

## Apple Scald

Apple scald of green and ripe fruit in storage can be entirely and easily prevented by an occasional renewal of the air of the storage room. Accumulations of carbon dioxide (carbonic-acid gas) produced by the apples in storage, the lack of air movement in the storage rooms, and the depositing of moisture on the fruit, are all factors that may play a part in the production of scald. Experiments indicate that high humidities may be maintained in storage without the development of scald, and prove conclusively that an occasional renewal of the air of the storage room will completely prevent the disease. This has been demonstrated in repeated experiments with several varieties of apples. Well-aerated apples remained free from scald, while in all cases poorly aerated ones, handled in the same way from the time they left the tree throughout storage, became badly scalded.

Scalded fruit was found to be more mealy and poorer in flavor than unscalded. Scald, in addition to rendering the fruit unsightly and reducing its market value, rendered the apples extremely susceptible to certain storage rots.

### Avoid Smothering.

Apples were apparently little harmed by several weeks' storage under poorly ventilated conditions if better aeration was provided before the fruit reached a certain critical period in its storage ripening. The maximum length of time that the fruit can remain in poorly ventilated storage without incipient injury, however, has not been determined for many varieties. Final recommendations in regard to the frequency of ventilation, therefore, cannot be given as yet, but investigators state that the fundamental fact that ventilation will prevent the disease has been established, and advise storage men to avoid taking chances of smothering the fruit.

## Fertilizers Advance in Price

Vegetable growers should realize that the plantfood problem is fast becoming serious. Potash is practically out of the market. Nitrate of soda can hardly be purchased, even at exorbitant prices. Meat scrap and digester tankage are demanded by the poultrymen and pork producers in enormous quantities, because feed is so excessively high and several hundred thousand tons of ammonium sulphate are being used in the manufacture of explosives. This means that nitrogen will be exceedingly scarce. It is safe to say that heretofore more than half of our commercial fertilizers has consisted of acid phosphate. This "acid phosphate" is made from rock which is mined in the South. It contains approximately 30 per cent of phosphoric acid insoluble in water. This important plantfood is made available (soluble) by mixing it with an equal part of sludge acid, which is made from crude sulphur, called pyrites. Most of this material formerly came from Spain. Now this supply is quite limited because there are not enough boats available to transport it. Add to this shortage the fact that the powder industries demand enormous quantities of sludge acid. It means that this material formerly worth \$5 per ton is now selling for \$22 per ton with the prices advancing

## Potato Improvement

As the result of a conference of the recently appointed Advisory Potato Council of Ontario, it was decided to grow potatoes on the provincial farms, at Fort William, Burwash, New Liskeard and Monteith. The seed will be distributed among northern farmers. In the meantime seed potatoes from New Brunswick will be distributed to northern farmers at cost, less freight.

One thousand farmers in older Ontario are to be supplied with seed grown in New Brunswick, Northern Ontario and older Ontario for experimental purposes. Acting on the recommendation of experts, the province will specialize on the two standard potatoes, "Irish Cobbler" and "Green Mountain." All experimental work of the Department of Agriculture will be co-ordinated with a staff of experts to insure production only of potatoes free from disease.

While the two standard potatoes will be grown for seed, only the one line will be grown in one district. The scientific experimental work will be co-ordinated under the

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## Standard Apple Trees

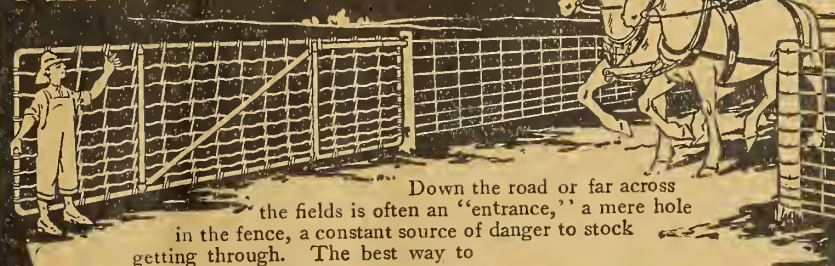
Have advanced in price 100% during the past year, but we are selling our surplus at the same price as usual. This is the chance of a life-time, as after the fall shipments we will advance our prices at least 50%.

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ERIK ERICKSON

direction of a committee composed of Prof. Zavitz, of the Ontario Agricultural College; Mr. W. T. Macoun, Dominion Horticulturist; W. G. Nixon, in charge of development work in Timiskaming; R. S. Duncan, Supervisor of District Representatives; and Justus Miller, the Assistant Commissioner of Agriculture. Prof. J. E. Howitt, of the O. A. C., has been placed in charge of the inspection of all potatoes in the field being grown for seed, to see that all diseased plants are removed. Mr. Justus Miller has been appointed potato specialist in order to co-ordinate the work of the different agencies.

## Fruit and Vegetable Regulations

Hon. W. J. Hanna, Food controller, has announced that on and after February 1, 1918, no person or firm dealing, wholesale, in fresh fruits or fresh vegetables, either at producing points or in distributing centres, will be permitted to operate without a license from his office. Any attempt at speculation, or the taking of undue profits by any license-holder, may result in the immediate suspension or cancellation of such license. Regulations to this effect have been signed by Hon. Mr. Hanna upon the recommendation of the Fruit and Vegetable Committee of his office.

As a result of a careful study of the distribution of fruit and vegetables in Canada, and after conferences with representatives of the wholesale trade, the dealers have been divided into a number of classes and sub-classes, and their operations have been made subject to the following regulations:

(1) No license-holder shall charge more than a reasonable profit or commission, or make any contract for future delivery or store in order to acquire speculative profits from a rising market.

(2) No license-holder shall sell to any other license-holder of a like class and division except on a split profit or split commission, and only one such sale of the goods may be made.

(3) No holder of a broker's license shall charge any brokerage or commission on goods shipped to him for sale, if such goods are transferred by him to any wholesale commission merchant to be sold on commission.

(4) No holder of a commission packer's or a wholesale commission merchant's license shall sell to himself any goods received by him to be sold on commission.

(5) Every license-holder shall keep such books, invoices, vouchers and other papers and records as will enable the Food Controller, or any person by him thereto authorized, to verify any report or statement that such license-holder is required to make to the Food Controller.

The regulation of the wholesale trade is expected to result in the more efficient and less costly distribution of fresh fruit and vegetables, to eliminate speculation, and to protect the legitimate dealers against unfair competition by those employing improper methods. A license fee of \$10 or \$20 will be charged, depending upon the class or sub-class to which the applicant belongs.

Small tubers have been used for seed for one season without serious reduction in yield in the gardens of the Ohio Experiment Station. The continued selection of small seed, however, is not recommended. Yields would eventually decline under such a practice. Potatoes weighing less than two ounces yielded only 10.7 bushels an acre less than tubers weighing more than 6 ounces, whole tubers being planted in each case.

## PRACTICAL SUPPORT

If more readers of The Canadian Horticulturist would send us letters like the following it would soon enable us to make The Canadian Horticulturist of still greater value and service to its readers:

"Many thanks for the October number of The Canadian Horticulturist. I enjoyed it very much, and would like my friends to know its value, so am sending you twelve names and a money order for \$3.00 to pay for a year's subscription for each. Kindly start the year with the November number and oblige,

MRS. SEAMAN,

Antigonish, N.S.

## Hardy Plums

There are great areas in Canada where the European plums, such as Lombard and many others, do not succeed, either the fruit buds or the trees being injured or killed by winter. There are two species of wild plum, however, in Canada, the cultivated varieties of which enable one to grow this fine fruit in very cold regions. In Eastern Canada the common wild species is the Canada plum, "Prunus Nigra," while in Manitoba the common native species is the American plum, "Prunus Americana." It is surprising that trees of these plums are not planted by everyone having a garden when there is room enough to have a few trees, as they bear young and bear abundantly, and the fruit of the best cultivated varieties, while not as good as the best of the European sorts, is excellent when eaten raw and makes very good jam when properly cooked.

At the Experimental Farm, Ottawa, over 100 varieties of these plums have been tested during the past twenty-eight years. The outstanding or most widely useful variety of the Canada plum has been found to be the Cheney, a red variety of fairly good quality, which cooks well. The Assiniboine, a new variety, is very promising. On account of its earliness, the Cheney is particularly useful in the Prairie Provinces, where many of the varieties are too late to ripen. Few of the American sorts usually offered for sale are sufficiently early for the prairies, most of them having been originated in the States of Minnesota and Iowa, where earliness is not so important. Seedlings of the native Manitoba sorts are now being grown at the Experimental Farms on the prairies to obtain other and better ones. The Major plum, which has been brought to notice by the Brandon Farm, is a very early sort.

At Ottawa, where the season is long enough for most of the American varieties, the Brackett, Terry and Admiral Schley have proven to be three of the best. Other sorts more generally are De Soto, Wolf and Hawkeye. The wood of the American plums, being brittle, does not stand the heavy snow in Eastern Canada very well, the result being that the trees are often badly broken unless they are headed back each year to make them stocky. The Canada plum, however, makes a very strong tree, hence the Cheney is additionally valuable on this account. The earliest varieties of the Canada and American plums are ready for market before the European ones, hence it has been found at Ottawa that the prices obtained for them are nearly always quite remunerative, and the profits probably greater than from plums in the best plum districts.



## Insect and Pest Act

The regulations under the Destructive Insect and Pest Act have been amended with reference to the importation of nursery stock into Canada. It will be necessary that Canadian nurserymen and other importers of nursery stock be guided by these regulations in making their shipments into Canada. It would be advisable for Canadian importers to call the attention of shippers to these new regulations.

The new requirements with reference to the importation of nursery stock are as follows:

(1) Regulation 3, last paragraph requires that "Nursery stock subject to fumigation shall not be included in cars, boxes, bales or other containers with plants that are exempt from fumigation or inspection, but shall be shipped in separate containers."

(2) The requirement under regulation 4 is that "The port by which it is intended that nursery stock subject to fumigation or inspection shall enter Canada, shall be clearly stated on each car, box, bale or other container which shall also bear a declaration of the nature of the contents."

All the quarantine regulations have been combined into one regulation, No. 7. A new quarantine has been established with respect to all species and varieties of gooseberries and currants, the importation of which is now prohibited on account of the white pine blister rust.

## The Possible Wayne County Farm

Bulletin 304, Ohio Agricultural Experiment Station, Wooster, Ohio.

This is one of the most interesting bulletins on soil fertility that has been issued for a long time. It interprets and applies the findings of the experiment station, which is located in Wayne county, to the farmers of the surrounding territories. The same ideas and lessons would apply to other sections.

Director Thorne shows the acreage and average production of the principal crops in Wayne county for the ten years, 1905 to 1914. He points out the fact that there is but little more than a ton of manure available for each acre under cultivation in the county. There is also but 60 pounds of fertilizer for each acre under cultivation, or 300 pounds for each five-year rotation. It is shown that the average Wayne county yields of corn, oats and wheat is but 39.8 bushels, 36.96 bushels, and 19.33 bushels respectively for the different crops, when by practicing the methods that have proven successful on the same soil at the station the yield might be 61 bushels of corn, 57 bushels of oats, 31 bushels of wheat. This increase might be secured by using 600 pounds of fertilizers to the acre along with two tons of limestone, which would cost but

\$3.20 an acre annually. Allowing for extra cost of harvesting, there would still be a clear gain of \$4.50 for each acre under cultivation in the county, or a total gain of \$787,000 for the 175,000 acres under cultivation. These figures are not based on the best results of the experiment station. When the best results secured by the station are used as a basis for estimating the possible Wayne county crop production there would be a total net gain for the county of more than a million dollars annually.

Director Thorne also points out that the tenant who uses no fertilizer nor manure on his land in Wayne county receives but \$1.34 per day for his labor, which is part man and part team, and the landlord receives but \$5 per acre for the land actually under cultivation. Where fertilizers and lime are used the tenant's share amounts to \$1.70 per day while the landlord receives \$9 per acre as rent for his land. Where fertilizers, lime and manure are used the income of the tenant is more than \$2 per day and the landlord receives \$12 per acre for the land actually cultivated.

## Scarcity of Nursery Stock

At the outbreak of the war, nurserymen generally had a fairly large stock of fruit trees. The spring previous to the war, they had planted heavily. The outlook for the large-fruit industry was bright. Our markets were developing rapidly. Europe was taking most of our surplus fruit. British Columbia had also opened up a new market with Australia. The home market was also being developed to an extent never before experienced. Apples, peaches and pears were gradually going up in price. The nurserymen were justified in believing that more and more ground would be devoted to fruit-growing. They therefore stocked up their nurseries with standard varieties.

When war broke out, business was uncertain for some time. The nurserymen, therefore, made very small plantings. Later, when confidence in the industry was restored, they found it impossible to get their usual supply of seedlings. They are imported from France, where the supply is depleted on account of war conditions. It will be many years before the usual supply will again be forthcoming. This will make fruit trees scarce for many years. Even now the wholesale price of apple stock is nearly double what it was previous to the war.

Advices from various nursery firms in the country state that they have now a fairly large stock of trees which should be saleable during the coming year. They are young seedlings which were imported during the year 1914. These had to be budded or grafted, and are now saleable trees. On account of the very small amount of stock

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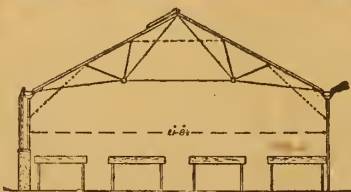
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**HON. G. HOWARD FERGUSON,**  
Minister of Lands, Forests and Mines.

coming from France, however, these nurseries have very few seedlings to graft now for future use.

## Cull Apples for Hogs

It is expected that apple marketing conditions will be more or less congested on account of the British embargo. If a market is to be found for all the high quality apples it will mean that culls must be kept off the market. In connection with the utilization of these culls the experience of Mr. John Stewart, Nanaimo, B. C., may be of interest. He says:

"About six years ago I commenced to feed cull apples to pigs. At first the apples were fed whole, but the pigs did not do well on whole apples. The experiment was then tried of grinding the apples into pulp through a cider mill by hand and the pulped apples were mixed with shorts. The pigs made rapid progress on that ration. For several winters the practice of grinding the apples was done by hand, but it is rather hard work grinding apples three times a day—it made one think of an easier way to get the work done. I owned a good gasoline engine, which had been attached to a spray pump for several years. The engine was detached from the pump and a 5-inch pulley put on the fly wheel. The engine was screwed down to a piece of plank and the plank nailed to the floor and a 2-inch belt harnessed the engine to the cider mill, which was set close to make fine pulp.

"In feeding pigs we have to remember that the pig does not chew the cud. This winter two pigs were purchased, and they were weighed—one a runt weighed 66 pounds and the other a mongrel, part Berkshire, part Tamworth and part Yorkshire, weighed 81 pounds. These pigs were fed a 36-pound box of apples and five pounds of shorts a day divided into three feeds. They were kept two months and killed and weighed. The runt made a gain of two-thirds of a pound and the other one pound a day.

## Getting Results with Potatoes

It is very important to prevent the tops of potatoes from being eaten by insects, particularly by the Colorado Potato Beetle. The old "bugs" do not do much harm to the foliage, as a rule, and usually the plants are not sprayed to destroy these, although the fewer there are to lay eggs the less difficulty there will be in destroying the young ones. These begin to eat rapidly soon after hatching, and close watch should be kept so that the vines may be sprayed before much harm is done. Paris green kills more rapidly than arsenate of lead, but does not adhere so well, and in rainy weather it is desirable to have something that will stay on the leaves so that they will be protected until it stops raining and thus prevent the tops being eaten. At the Central Experimental Farm a mixture of Paris green and arsenate of lead is used in the proportion of eight ounces Paris green, one and a half pounds paste arsenate of lead (or twelve ounces dry arsenate of lead) to forty gallons of water in order to get the advantage of both poisons. It may be that it is not convenient to get both poisons, when either twelve ounces of Paris green or three pounds paste arsenate of lead (or one and a half pounds dry arsenate of lead) to forty gallons water could be used. In smaller quantities, one ounce Paris green to three gallons or three and a half ounces paste arsenate of lead or half that quantity

of dry to three gallons of water would be the proportion. An experiment conducted for six years at the Ontario Agricultural College, Guelph, showed that, on the average, where the tops were sprayed to kill "bugs," the yield was one hundred and eighty-six and nine-tenths bushels per acre, while when the tops were not sprayed and allowed to be eaten, the yield was only ninety-eight and one-fifth bushels per acre. It is desirable not to stop with one spraying, which usually does not kill all the bugs. Spray several times, if necessary, so that as little foliage as possible is eaten.

## Protection of the Potato Plants from Late Blight and Rot.

In some years the crop of potatoes is much lessened by the Late Blight disease, and when rot follows little of the crop may be left. It is, therefore, very desirable to prevent this disease from spreading. This is done by keeping the plants covered with Bordeaux mixture from about the first of July, or before there is any sign of the disease, until September. Sometimes the first application of Bordeaux mixture is made before the potato beetles are all killed. The poison then may be mixed with the Bordeaux. While the disease is not very bad every year it is well to be prepared. There was an average increase per year of ninety-four bushels of potatoes from spraying with Bordeaux mixture in three years.

The formula for Bordeaux mixture for potatoes is six pounds copper sulphate or bluestone, four pounds freshly slaked lime to forty gallons of water. Bluestone will dissolve more quickly in hot water. If it is not convenient to get this, it may be suspended over night in a cotton bag in a wooden or earthen vessel containing four, five or more gallons of water. The lime should be slaked in another vessel, and before mixing with the copper sulphate solution should be strained through coarse sacking or a fine sieve. The copper sulphate solution is now put into a barrel, if it has not already been dissolved in one, and enough water added to half fill the barrel. The slaked lime should be diluted in another barrel with enough water to make half a barrel of the lime mixture. Now pour the diluted lime mixture into the diluted copper sulphate solution and stir thoroughly. It is then ready for use. The concentrated lime mixture should not be mixed with the concentrated copper sulphate solution. If this is done, an inferior mixture will result. If the barrels are kept covered so that there is no evaporation, stock solutions of the concentrated materials may be kept in separate barrels throughout the season. It is important to have the quantities of lime and copper sulphate as recommended. In order to be sure that enough lime has been used and there is no danger of burning the foliage, let a drop of ferrocyanide of potassium solution (which can be obtained from a druggist) fall into the mixture when ready. If the latter turns reddish-brown, add more lime mixture until no change of color takes place.

## Reduce Car Shortage

The transportation situation is still serious and shippers of farm commodities are reminded that patriotism demands of them the heaviest loading possible, consistent with the safe carriage of the goods. The failure of one shipper to load cars to the maximum may prevent other shippers from getting any cars at all, with a consequent loss of those foodstuffs on which the winning of the war depends.



CAN ag. Sem.

FEB 21 1918

# THE CANADIAN HORTICULTURIST



Seventh Annual Spraying Number

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# The Canadian Horticulturist

Fruit Edition

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No. 2

## Dusting Versus Spraying

Prof. L. Caesar, Provincial Entomologist, Guelph, Ont.

**E**XPERIMENTS in dusting apple orchards with finely ground sulphur and powdered arsenate of lead as a substitute for spraying with liquid mixtures were begun in New York State about five years ago. The results obtained there the first three years against scab and other apple diseases and also against codling moth and other biting insects were very encouraging. Influenced by the widespread report of its success, and the great rapidity with which dusting could be done, experimenters and fruit growers not only in other states but also in Canada, especially in Ontario and Nova Scotia, purchased dusters and tested the new method in 1916 and again in 1917. These two years in most of north-eastern North America have been exceptional for the amount of rainfall that took place in the first half of the season, and consequently have been very favorable for the development of apple scab. Such conditions have, therefore, afforded an opportunity for a severe test of the merits of dusting as a means of controlling scab.

### Present Status of Dusting.

So far as one can judge from his own observations in Ontario and from reports received from other places, dusting has, wherever properly timed and thoroughly done, proven to be about as satisfactory as the poison liquid spray against the codling moth and the other chief biting insects of the apple; but as to its power to control apple scab, there is a great diversity of opinion, for the results obtained have varied greatly. In some districts almost perfect control has been obtained by some experimenters, while in other districts the results have been very disappointing. In the former cases they have been about as good as those from the most thorough spraying; in the later, spraying, though done by the same men at the same time, has given much better results.

The reasons for these conflicting results are not always clear, but the following would seem to be the chief:

First.—Some years apple scab is much harder to combat in some parts of a state or province than in others. Usually this is because the difference in time of bloom coincides with a difference in weather conditions. For instance, apple trees in Niagara may begin to bloom about May 20th, while those east of Toronto may not do so until about June 5th, that is two weeks later, so that we can easily see that the weather during the three or four weeks from the time bloom begins to appear in Niagara until the apples are set may be quite different from what it is east of Toronto during the same stage of the blossoms and fruit. It is during these three or four weeks in each district that the chief development of apple scab as a rule takes place. Therefore, it may be much easier to control the scab with any mixture in one district than in another.

Second.—Again, sometimes individu-

al orchards are hard to keep free from this disease, because of the presence of windbreaks or poor circulation of air from other causes, or occasionally because of the proximity of a large body of water on the windward side, which tends to keep a greater amount of moisture in the orchard.

We can easily see, therefore, that in the more favored orchards, either dusting or spraying may give almost perfect results, while in the less favored orchards, the dust being more easily washed off the trees than the spray (once the latter is dried) may not be able to control the scab nearly so well as the liquid, and may give disappointing results. It remains to be seen whether, under such a stiff test as is sometimes encountered, the dust method can be so improved by additional well timed, light applications, and possibly by using still finer ground sulphur and some adhesive diluent that it



A Dusting Machine in action in an Ontario orchard. (Photo from L. Caesar).



will equal, under all circumstances, the liquid, without causing a great increase in cost.

### Comparative Results.

In 1916 the writer dusted about three acres of very large, previously neglected apple trees, and sprayed with the regular liquid mixture two acres of similar trees in the same orchard, in the Grimsby district. In 1917 he dusted about five acres of large trees in each of two orchards, A and B, and sprayed about one acre in each of these for comparison. In all three orchards, owing to the presence of San Jose scale, all the trees were given a thorough dormant or semi-dormant liquid spray with lime-sulphur. After this the dusted areas each received one dusting just before bloom, and one just after it. Fifty-two trees in orchard A received a third dusting three weeks after the bloom, not with the thought of controlling apple scab, because the weather showed that this was not required, but to prevent side-worm injury from codling moth. The liquid sprayed portions in each orchard were thoroughly sprayed with lime-sulphur and arsenate of lead at the same dates, and by the same men who did the dusting.

Table of Results, 1916 and 1917.

Method.	Orchard.	P. C.	
		free from scab.	free from worms.
Liquid ... 1916	Orchard. ....	99	94
Dust ... 1916	"	97	92
Liquid ... 1917 A	"	99	70
Dust ... 1917 A	"	99	70
Liquid ... 1917 B	"	97	50
Dust ... 1917 B	"	92	60

Note.—In 1917 the crop was small in orchard A, 200 barrels, and in B only 20 barrels. This and the fact that the codling moth had not been controlled the previous year, accounts for the small percentage of worm-free fruit. In A the 52 trees which received an extra application of dust three weeks after the regular codling moth application, had 90 per cent. of wormless apples; so that such treatment for all orchards A and B would have paid well this year.

A study of the foregoing table shows that so far as the Grimsby part of the Niagara district is concerned, dusting where properly done was satisfactory both in 1916 and 1917 in apple orchards, and gave almost as good results as the liquid spray, both on apple scab and codling moth.

Dusting of large trees is about seven times as rapid as the ordinary method of spraying with a gasoline outfit, but of course on smaller trees the differ-

ence in spread is not so great. It is also much cleaner. The outfit is a great deal lighter, and therefore can be used in softer ground and so at the proper

### A RULE FOR TO-DAY.

Go back to the simple life. Be contented with simple food, simple pleasures, simple clothes. Work hard, pray hard, play hard. Work, eat, recreate, and sleep. Do it all courageously. We have a victory to win.

—HOOVER,  
United States Food Controller.

time. The cost of the two methods for large trees is about the same, but for small trees spraying is much cheaper.

Many claim that it is easier to dust well than to spray well. The writer questions this. His experience leads to the belief that about 50 per cent. of fruit growers would need a good deal of training to make them efficient dusters. The method looks vastly simpler than it is, and none but a very conscientious and interested man should be allowed to do the work. In many cases it will pay to dust from three or even from four sides instead of two. Three pounds is sufficient for a very large tree, or 600 pounds for an orchard of 200 trees for a single application; in fact this is sufficient for the codling moth application, and about two and a half pounds per large tree would suffice for earlier applications.

In orchards where the trees are free from San Jose scale, and only lightly infested by oyster-shell scale, the first application may be given with dust instead of liquid, and in such cases should be applied when the leaves are about the size of a ten-cent piece. In many orchards the sulphur, without any poison, could be used for this application, thus reducing the cost by over 50 per cent.

The time for the second and third applications should be just before and just after bloom. For any extra applications the spray calendar should be consulted.

Whether the special dust sold to control San Jose scale will prove reliable under all circumstances is doubtful. The writer controlled the scale this year with it on 48 large trees, but believes that to do satisfactory work it will either have to be ground much finer or have to be applied just after a shower, while the trees are still moist; otherwise he fears it will not remain in sufficient quantities on the bark.

### Controlling Rot and Mildew.

This last season (1917) the writer

used dust, with very satisfactory results, on sweet and sour cherries, as a means of preventing rot during the picking season. The dust applied was composed solely of sulphur and ground tale, without any poison, (the poison being unnecessary at this date) and was applied a day or two before picking began. Liquid spray could not have been used at this date, because it would have stained the fruit too much. The dust, however, did not leave any stain at all, and by being applied at this critical stage practically saved the whole crop in the two orchards treated. The fruit and foliage on these orchards had, of course, been kept covered by the liquid mixture—lime-sulphur and arsenate of lead—during the earlier part of the season. This helped greatly to prevent earlier injury from rot, but would not as was seen from check orchards, have saved the crop during the very unfavorable weather at the time of harvesting.

On grapes, in 1916 and again in 1917, good results have been obtained in keeping off powdery mildew from the red varieties. In neither of these years was there any burning of the foliage on these or other varieties, but it is impossible, without further dusting, to be sure that Concord and other blue grapes could safely stand heavy dustings with sulphur under all circumstances; for in New York State these varieties have been severely burned by the sulphur, while the red varieties have not been injured. There has been no opportunity to test whether the dust is effective against the black rot of grapes, this disease having been almost entirely absent in 1916 and 1917 in the districts where the tests were conducted.

### Fertilizers and War Prices

Increased prices of crops due to the war make some commercial fertilizers more profitable than ever before, because the fertilizer prices have not risen in proportion. Acid phosphate returned \$5.39 net per acre in a three-year rotation at the Ohio Experiment Station when corn sold for fifty cents a bushel, oats forty cents, and hay ten dollars a ton. The fertilizer then cost fourteen dollars a ton.

To-day this net gain would be ten dollars and seventy-two cents from the same application, for corn sells for double its former price, and the other crops have advanced one half. Acid phosphate sells for about twenty dollars a ton, or an increase of six dollars.

A rich, well drained clay loam is best for currants, although they will do well in most soils.—W. T. Macoun, C. E. F., Ottawa, Ont.



# Applying Sprays for Best Results\*

Geo. E. Sanders, Dominion Entomological Laboratory, Annapolis Royal, Nova Scotia

IN common with all other apple producing sections of America, Nova Scotia from 1910 to 1917, used lime and sulphur solutions almost entirely as a summer spray. In the early stages with hand and light power spraying outfits and very fine nozzles, no harm resulted. As outfits increased in power and more pressure and higher capacity nozzles were used the complaint was heard that the lime sulphur burned the apples off the trees. This complaint was considered most irrelevant, in view of the many responsible persons both in and out of government employ, who were recommending people to use 1 to 35 and 1 to 40 of the commercial material.

In 1915, Mr. G. L. Thomson, of Berwick, N.S., conducted an experiment which proved that lime and sulphur 1 to 37½ of the commercial material used for the fourth or last summer spray would cause about two-thirds of the crop to drop from the trees. Two of our own experiments of that year corroborated this experiment.

In our experiment work on the quantity of fruit produced on trees sprayed with various solutions, we have used young Wagner trees exclusively. On account of the comparative immunity

of this variety to apple scab and to a less extent insect injury, we were able to get results that were even, and not in any way clouded by fungus or insect control, as exerted by the spray in increasing the crop.

In 1916, our main results were; Thorough spraying with lime and sulphur, stronger than 1 to 50, would remove the greater part of the crop. Lime sulphur from 1 to 50, to 1 to 75, did in every case some injury. Lime sulphur injury was greatest from the fourth or last spray, less from the third, less again from the second and least from the first. Where lime sulphur burned ten per cent. of the leaves most of the crop would drop, but where soluble sulphur was used and 50 per cent. of the leaves burned badly, only a small portion of the crop would drop. Bordeaux, like soluble sulphur, did not cause any appreciable decrease in the quantity of fruit produced. Bordeaux when used for the fourth or last summer spray will cause less than 5 per cent. of the very slightest netting, when used for the second spray, or just before the blossoms, it will cause from 30 to 50 per cent. of slight russett or netting and when used for the third, or the spray just after the blossoms, it will cause from 50 to 90 per cent. of serious russetting. Russetting from bordeaux is more a question of date of applica-

tion than of variation in the material or the formula, although in many seasons the Thomson-Buchanan bordeaux may be used for the third spray with only a slight russetting of the fruit as a result.

The following figures from two years' work on the Wagner are as follows:—

## Percentage of Russetting from Bordeaux 4-4-40.

	1916	1917.
First spray only .....	.....	12.6
Second spray only .....	7	61.5
Third spray only .....	43.6	69.4
Fourth spray only .....	3	1.4

With the above data we started the season of 1917. Early in June Mr. A. Kelsall joined our force and carried on most of the work in connection with the spraying of the fruit. The first question was how does the lime sulphur work to cause the drop of fruit? To answer this Mr. Kelsall sprayed with a hand atomizer all the apples and stems of apples on one limb, not touching the leaves. On another limb he sprayed all the leaves without touching the apples. Where the apples only were sprayed there was no drop, but where the leaves only were sprayed all of the fruit dropped, showing the drop to be due entirely to the effect of the spraying material on the leaf. Soluble sulphur and bordeaux were tested in this way, but did not cause any dropping that could be noted.

## The New Spray Gun.

About this time Mr. S. B. Chute, of Berwick, N.S., sent two men out to spray with the new spray guns. One of them sprayed very industriously in all directions from the ground, the other stayed on top of the tank so that the spray from his nozzle hit the upper and not the lower surface of the leaves. In two weeks it was noted that the man who had sprayed from the ground had done an immense amount of injury, while the man who had sprayed from the top of the tank had done no appreciable injury. We immediately put in an experiment to corroborate this in a more exact way. The leaves on one limb were sprayed on the under side only with 1 to 30 lime and sulphur and on another limb the leaves were wet on the upper side only with the same solution. In about one week all of the leaves which had been sprayed from beneath dropped, while those sprayed from above showed only the slightest tip burn where the drop of solution had gathered at the tip and so came in contact with the under side.



In Ontario the lime-sulphur spray has given good results. Note the wheels on this power sprayer.

\* Extract from an address delivered at the recent annual convention of the Nova Scotia Fruit Growers' Association.



Injury from spray applied to the under side of the leaves always became apparent from the top side. It was apparent, therefore, that leaves absorb appreciable quantities of spraying material when it is applied to the under side of the leaf. The next move was to extract some chlorophyll, and to get the action of the various spray materials on the extract. Bordeaux and sodium sulphide (soluble sulphur) caused no appreciable change in the green solution, but the lime sulphur solution caused a most rapid change, and curdling or throwing down of a brown precipitate. On sectioning the leaves that were sprayed with the different solutions, we found that what was going on in the extracted solutions was going on in the leaf cells, and that the lime sulphur soaking in from the under side was causing a marked change and browning of the chlorophyll in the cells, while the chlorophyll in the cells of the leaves sprayed with bordeaux and soluble sulphur showed no injury.

It is, therefore, apparent that "spraying apples off the trees with lime and sulphur" is a starving process, caused by the lime sulphur applied to the under side of the leaves being absorbed and acting on the chlorophyll, causing the manufacture of plant food to diminish or cease, and as a result the apples drop, the drop varying with the date at which the lime sulphur is applied, the strength of the solution and the thoroughness of the application, or rather, the amount of lime and sulphur that is applied to the under side of the leaf. We can see that spraying apples off the trees with lime and sulphur is due to a chemical reaction of the lime sulphur on the chlorophyll, and the action should hold true in all localities to a greater or less extent. I may say that we already have good evidence that 1 to 40 lime sulphur has caused appreciable drop in many orchards of Ontario and New York State.

The following figures from some of our most accurate experiments show the result in tabular form.

Spray Used	No. of Apples Produced Per Pair of Trees.	
	Lime Sul. 1.009 sp. gr.	Bordeaux 4-4-40
Pre blossom or 2nd spray	159	327
After " 3rd "	108	204
" 4th "	30	231

Unsprayed trees averaged 277 apples per pair of trees.

In another test only one, the fourth, spray was applied with the following results:

Bordeaux 2 - 8 - 40	157 apples per tree
" 3 - 3 - 40	152 "
" 4 - 8 - 40	152 "
Lime Sul. 1.005 or 1 to 60	6 "

In our large experiment of 1917, in which the lime sulphur each had 12

trees, and the soluble sulphur and bordeaux plots each 16 trees, the results were:

	No. of Apples Per Tree. Only one spray used on each plot.		
	Lime Sul. (sp. cl.)	Sol. Sul. 1 - 40	Bordeaux 4 - 4 - 40
First spray....	152.66	121	87
Second spray..	40.33	61.25	62
Third spray....	28.66	43.75	55.75
Fourth spray..	8	74	77.5

These figures give an idea of what is going on, only on a larger scale in Nova Scotia in many commercial orchards, and you can realize the opinion that many of the largest growers are forming of lime and sulphur.

#### A Better Method.

On the other hand, we have had it demonstrated in Nova Scotia this year that it is possible to use 1-40 lime and sulphur and apply it with the spray gun at a pressure of 225 lbs., and get practically spotless apples and cause no appreciable drop. This was done by holding the gun a long way off from the trees and spraying so as to wet the upper and not the lower side of the leaves. It would seem certain that for two or three years after lime and sulphur was introduced as a summer spray that the methods of using lime sulphur, with low pressure and fine nozzles which wet the upper and not the lower side of the leaf, did not result in any appreciable amount of injury, but with the larger orchards developing the orchardists have had to speed up their spraying operations by using larger outfits, more pressure and coarser nozzles, with the result that more lime sulphur has been applied to the under side of the leaf with more injury as a result.

In using the gun, or any nozzle for that matter, with lime sulphur, the object should be to wet the upper side of the leaf only. With sodium sulphide sprays and with bordeaux, it would appear that this precaution is not necessary.

In regard to the spray gun, I used one on my farm last year, and now consider it indispensable. I found that one man with a gun could apply 75 per cent. more spray than two men with the old bamboo rods and calyx nozzles, besides doing a more thorough job and getting less spray on themselves. The most important caution in using a gun is, do not spray with lime sulphur with the gun so as to drive the spray against the under side of the leaves.

Note: Tests conducted in Ontario of arsenate of lime with lime-sulphur in comparison with arsenate of lead indicated that, under Ontario conditions, the arsenate of lime caused more burning. Bordeaux also caused more foliage injury and fruit dropping than lime-sulphur.—Editor.

## Dusting Results in Ontario

P. W. Hodgetts, Provincial Horticulturist, Toronto.

Our experience with dusting dates from 1916, when a medium-sized machine was used in a number of experimental orchards. The season was bad and the results were disappointing. The manufacturers claimed that for large trees, such as we were treating, the machine was not efficient. In 1917 the latest type, large-sized outfit, was purchased, and the dusting carried on in one orchard only. The work was done as carefully as for our liquid spraying. Again the season was bad for scab. The final results, except on Baldwins, were in favor of the liquid lime sulphur.

Dusting is decidedly ahead of spraying in saving time and labor, both especially important factors at this period in our history. For varieties not subject to scab, dusting will control the biting insects, while under normal weather conditions we might expect to secure better results for scab on all varieties. This can only be found out by continued experiments in coming years. Ontario has experienced unusually bad conditions now for several years.

We have examined other orchards where dusting was practiced in 1917, and have seen both good and bad results. If improvement can be made in our methods of application dusting may yet, and we hope will, prove a great boon to the commercial orchardist.

## Loganberries in Ontario

E. F. Palmer, Horticultural Station, Vineland, Ont.

Have you been experimenting with the loganberry at the Vineland Station? I would like to know whether they would be satisfactory to try a few dozen bushes in the London district. I understand they are grown quite extensively in British Columbia.—A. L.

WE have been testing the loganberry at Vineland for two or three years, but find, as expected, that it is not hardy. The new shoots kill back pretty much to the ground each winter, depending upon the amount of snow covering. In the west, where the loganberry is grown extensively, it is, of course, not subject to the extreme temperature experienced here. There they are grown, trained to wire trellises, and are thus kept off of the ground at all times. If you were to take sufficient trouble to lay the vines down and cover them well during the winter, you would be able to get a fair amount of fruit. I am sure, however, that it is not a commercial proposition to grow present varieties of loganberries in Ontario. The only hope for this country is a hardier type.



# Dusting Results in a Nova Scotia Orchard\*

W. H. Brittain, Provincial Entomologist, Truro, N.S.

ONE of the problems that has a great interest for fruit growers is dusting. Naturally anything that will reduce the labor element is a matter of practical concern.

In the orchard where our experiments were conducted we had to contend against an extremely severe natural infestation of apple scab. On the untreated plots only 4.7 per cent. of the Gravensteins, 5.2 per cent. of the Kings, 11.4 per cent. of the Baldwins, and 6.4 per cent. of the Ben Davis were free from injury—mostly apple scab.

This may be attributed to the fact that the orchard is on heavy clay soil, the ground is level, with air breaks on two sides making poor air drainage, and the very wet season favored the development of the fungous. It should also be noted that there was a very heavy drop of fruit, owing to faulty fertilization, making conclusions difficult.

Under these conditions the results obtained from our various dust mixtures cannot be regarded as satisfactory even by the most enthusiastic advocate of this practice, but they should be considered in connection with the results from the untreated trees which have al-

ready been given, and with those from the sprayed trees, which even the most enthusiastic advocates of spraying could not regard with satisfaction. The percentage of clean fruit from the best dusted plot was as follows:—36 per cent. Gravenstein, 76 per cent. Ribston, 41 per cent. Kings, 27 per cent. Baldwin and 43 per cent. Ben Davis, the following being the count of clean fruit from the best sprayed row, Gravensteins 52 per cent., Ribstons 79 per cent., Kings 41 per cent., Baldwins 43 per cent., and Ben Davis 46 per cent. These figures certainly bear out my statement that in this orchard we had to contend with an outbreak of apple scab of unusual severity. Apple scab was the main factor in reducing the quality of the fruit. There was a fairly constant count of biting insect injury throughout all the plots, but we could find nothing to the advantage of either dusting or spraying, both giving good control.

When we come to foliage injury there is a big advantage in the use of dust, which does not appear to cause any damage whatever.

The damage caused to the foliage is not always as represented in the final crop returns. In the two plots that received the fourth spray of Bordeaux Mixture and arsenate of lime, the crop is quite up to the average of the dusted

plots—in fact it exceeds the crop on either/dusted or untreated trees—but where the last spray was lime sulphur and arsenate of lime, one plot yields less than half and the other less than one-third of either the dusted or the sprayed rows.

These are in a very brief and general way the results from our spraying and dusting experiments during 1917. I hope, however, no one imagines that the case of spraying and dusting has been settled thereby. Different conditions in the orchards treated produce very different results. Some have obtained such efficient control by means of dusting this year that they are and have a right to be entirely satisfied. Others have not obtained such results. I was in hopes that we would be able to watch the experience of New York State and of the Province of Ontario and save ourselves the trouble of doing this work, but we find in both these places numbers of enthusiastic advocates and equally condemnatory critics of dusting among men who would be expected to know. If, therefore, they cannot come to an agreement after several years of careful work, it would be presumptuous for us to express an opinion after only a single season's experiments. At the same time I think there are a number of things upon which all workers on this subject will

\* Extract from an address delivered at the recent annual convention of the Nova Scotia Fruit Growers' Association.



Dusting has been tried with considerable success by growers in the Burlington district, Ontario. A well-directed spray is here shown.





The Rosy Apple Aphis.

The work of the Rosy Apple Aphis is here shown. These are mature apples that were dwarfed by attacks of the aphis.

be agreed, and it will do no harm to recapitulate them here.

First—Dusted arsenicals and sprayed arsenicals are both efficient if properly applied.

Second—Finely ground sulphur dust has a distinct fungicidal value, the percentage of control secured depending upon local and seasonal conditions.

Third—Under certain conditions dusting may give as good control of apple scab as spraying, but under other conditions, and especially against a severe natural outbreak, it is somewhat inferior.

Fourth—Dusting has great advantages in rapidity and ease of application enabling the grower to cover several times the acreage that he could with a spray outfit, a very important factor with labor power, scarce and dear.

Fifth—The practicability of displacing with dusting is yet unproven. Aside from the question of pest control there is the question of cost, and in view of the present uncertainty as to prices, no definite figures can be given, but the cost will certainly be high. If it is proven that spraying gives a better control of scab year after year, it must next be carefully calculated whether this disadvantage is outweighed by the many decided advantages presented by the dusting method.

Spraying strawberry plants with lime sulphur is now recognized as one of the most effective preventatives against all forms of fungous diseases.

## The Nu-Systm Spray Gun

M. B. Clark, Wellington, Ont.

**L**AST season for the first time I used the Nu-Systm Spray Gun in my spraying operations. The results were most satisfactory. At the beginning of the season I was not very enthusiastic in regard to its use. As the work progressed and the effects of its use during the first spray became apparent, my interest increased. This led me to determine to give the gun a thorough test. The result was that I personally applied all three sprays. The result is that I now believe that the Nu-Systm Gun should be a part of the regular equipment of every spraying outfit.

I obtained one of these guns before the date of the first or dormant spraying. It was after using it for this spray that I became convinced that it had much to recommend it. The gun was used with a Bean Duplex power sprayer which was adjusted to maintain a constant pressure of 200 lbs., and deliver four imperial gallons per minute at that pressure. This it did throughout the season. While the gun was equipped with metal discs with openings much too large for this capacity pump, it was only a small job to cut new discs from an old saw blade and drill smaller holes in it so that the capacity of the pump balanced the capacity of the nozzle. This is absolutely essential with all nozzles. If the nozzle outlet is too small for the capacity of the pump there is a waste of power in pumping more liquid than is being used. If the nozzle is of larger capacity than the pump behind it, it is impossible to keep up the pressure.

It was at the time of the second or pink spray, when the foliage was partly out, that the benefit from the use of the gun began to become manifest. Not only was it possible to take care of the full capacity of the pump through one line of hose, but just as effective work was done in spraying the whole tree at one application as if the usual plan of two men with one on the ground had been followed. There was also a distinct saving noticeable in the quantity of material used. This figured out, as near as I could estimate from the amount used in former years, under the old two men system, at about twenty-five per cent. This saving was again noted in the blossom spray.

Another demonstration of the efficiency of the gun was furnished when we found that it was not only possible to spray tall trees from the position on top of the spray tanks, but also to spray clear through the largest trees. This

action resulted in covering both sides of the majority of the leaves, as the spray blew the leaves around. It satisfied me that no more effective work than that which was done could be wished for.

All the sprays were applied from the position on top of the spray tank. The results were seen when the best crop we ever grew was harvested. My opinion of the Nu-Systm Gun is that it is the greatest spraying equipment invention since the advent of the power sprayer with an efficient pressure regulator.

As we were able to dispense with the third man's services all through the spraying, and at the same time maintain an average of eight 150 gallon tanks a day, it is easy to figure out the saving directly attributable to the use of the Nu-Systm Gun. It is my belief that it should be a part of the regular equipment of every power spraying outfit in the province.

## The Fertilizer Problem

Geo. W. Cavanagh.

The war has created a shortage of potash and points to an inevitable increase in the cost of phosphoric acid. This condition has created a fertilizer problem for which the only solution I see is that of getting back to fundamental principles and putting these into practice most thoroughly.

We have an ample supply of potash in most of our soils. All our soils are benefitted by the application of phosphates. The phosphate and phosphoric acid which are in the soils, or which may be added thereto, will be rendered available, practically in proportion to the quantity of decayable vegetable matter or humus in the soil.

Owing to the high cost of nitrogen, we must endeavor more than ever to secure our nitrogen through leguminous cover crops. For this end, we must keep constantly in mind the necessity of keeping a soil neutral or slightly alkaline by applications of lime or lime stone. Never in our agricultural history has there been such a need for conserving for use in the soil every bit of decayable animal and vegetable refuse, particularly stable manures. Where this material is being produced in quantity, advantage ought to be taken of the fact that where fine ground raw rock phosphate is mixed with this material, in small amounts, the decay of the manure tends to make the phosphate more available.



# Will it Pay to Spray This Year?

F. Carpenter, Fruitland, Ont.

THE past two seasons have been more or less disappointing to many apple growers in Ontario. Farm labor is scarce. A big percentage of our apples come from farm orchards, that is, from a few acres of orchard on a grain or stock farm. The returns from grain and stock farms have been highly satisfactory during the past two years, and have every prospect of being so this year. The embargo on apples is not likely to be fully raised, if at all. The cost of spray has advanced from 20 to 100 per cent. above last year. With these facts in view, we can naturally expect that many apple growers, especially those who have valuable farm interests in addition, will either not spray at all or will not do it systematically or thoroughly. Nevertheless, the probable returns from high grade apples this season are encouraging. My reasons for believing so are as follows:

Over half a million barrels of apples from Nova Scotia found a market in the Dominion this year. The major portion of this crop, in years previous to the embargo, was marketed overseas. What was the result? Prices have remained firm for good stock. It can be claimed that this was due largely to the crop in Ontario being a failure. This condition, no doubt, had its influence, but can we expect a crop of good quality apples in Ontario this year? The majority of Ontario orchards have been neglected the past

few years, and as a result cannot be expected to produce a crop of clean fruit next season. The orchards are in many cases unpruned and have deteriorated through the work of fungi and insect pests, which they are wintering over. The writer on this account expects only a fair crop of No. 1 and No. 2 apples in Ontario this year, even with favorable weather conditions. It is not to be expected that the Nova Scotia crop will reach anywhere near the proportion it did last season. The presence of Nova Scotia apples in Ontario has placed a premium on good Ontario winter stock and it stands higher in the estimation of the consumer than ever before. There is every prospect of a light orange crop again this year, which will have its influence. The demand for canned apples is good. The food controllers are recommending the free use of fruit to lessen the demand for beef, bacon and wheat. Will it not pay to help insure a clean crop of apples this year by thorough spraying?

## The Cost of Spraying.

Some growers, on account of results obtained during the past two years, have possibly lost faith in spraying. Spraying alone will not produce the desired results, as pruning, fertilization, early cultivation, general cleanliness, and other factors are necessary requisites. However, spraying is absolutely necessary and the writer gives here the cost of spraying five hundred,

thirty-five year old apple trees, last year, and the increased cost figured for this season.

First spray—Dormant wood. Sixty bbls. diluted spray—7 gallons water to one gallon lime-sulphur—7½ bbls. conc. lime-sulphur.

Second spray—Before blossom opens—ninety bbls. diluted spray, 39 gallons water to one gallon lime sulphur. 2¼ bbls. conc. lime-sulphur.

Third spray—After blossom falls—same quantity as second spray.

In second and third sprays, one and a half pounds of arsenate of lead was used to each barrel of spray or 270 lbs. of arsenate of lead in all.

The cost was as follows:—  
 12 bbls. lime-sulphur at \$7 a bbl. .... \$84.00  
 270 lbs. arsenate of lead, 12c lb. .... 32.40  
 8 days, 2 men and team, \$8.50 a day ..... 68.00  
 Sprayer ..... \$350.00  
 Interest on investment at 7 p.c. 22.50  
 Depreciation charged to other spraying .....  
 \$206.90

## Increased Costs.

The probable increase in cost during 1918 is as follows:—

Lime sulphur at \$9 a bbl., and arsenate of lead at 24c a lb.  
 Total increase ..... \$56.40

The cost of spraying last year was approximately 41c a tree. This year it will cost 52c a tree, or an increase of 11c a tree, or of practically 3c a barrel on an average crop of four barrels of apples. Will it pay?

## Spraying Has Paid.

Spraying has paid in our orchard during the past four years, or since we have been using an up-to-date spray outfit and doing thorough work. The past two years there have been light crops, though in the season of 1916 we packed 900 barrels of No. 1 and No. 2 apples. Last year the blossom prospects were to say the least disappointing. The orchard contained Greenings and Baldwins, about fifty per cent. of each. The Baldwins showed practically no blossoms, having been loaded the previous year. The Greening blossoms were scattered, very few trees showing a full load. We sprayed as usual with the result that practically every blossom set fruit and we had returns from the orchard of \$2,200, besides keeping the orchard in a condition favorable to a crop in 1918.

An analysis of the figures given on the cost of spraying shows some of the reasons that I believe have helped to secure clean fruit. The location of the orchard on the south shore of Lake Ontario might have an influence, but in similar locations in the district during the past few years have been grown



Cleaning up with the tank filler after the spraying operations are over in the orchard of Harris & Pearce, New Sarum, Ont.





What the Leaf Roller Does.

Note how these leaves have been tied together by the work of the leaf-roller.

some of the most disappointing crops of apples to be found in the province. Some growers say it's "luck," and if this be the case, the writer has found it advisable "to insure luck" by very careful spraying.

The dormant spray is necessarily very thorough and a strong mixture is used in this district on account of the presence of San Jose scale. The use of this strong insecticide and fungicide in combating this pest, cleanses the trees, fallen leaves, etc., of other pests which cause injury to the tree and fruit at later periods.

Will it pay to spray this year? I cannot see how any grower who has an orchard, unless it is being kept for shade or ultimate fuel use, can convince himself that it will not pay to spray this year. There is a good prospect of fair prices for clean stock and the spraying is not only beneficial to this year's crop, but produces healthier trees and bud formation favorable to a crop the following year.

## Rhubarb Culture

Wm. Armstrong, Niagara-on-the-Lake, Ontario.

IN the January issue of The Canadian Horticulturist, under the heading "Vegetable Problems Answered," Prof. J. W. Crow, O.A.C., answers E. I., who seeks information regarding best varieties of rhubarb for clay soil, etc. In order to assist E. I. and others seeking information in the Canadian Horticulturist for a choice of opinion and methods, I submit the following answer to E. I., who may not find it convenient to transplant rhubarb roots in the spring, on account of the rush of other work.

In my opinion Victoria is the best

variety. Procure the roots as near home as possible, in the late fall of the year, dig them out carefully, and divide them into sections of say three or four buds to each section.

When planting, select the earliest and best ground, with southern exposure, and dig holes two feet deep and two feet in diameter. Mix thoroughly the following fertilizers with the soil taken from each hole, three forks full of well rotted manure, one peck good wood ashes, and a quarter of a pound of flower of sulphur. Fill the hole so the top of the roots will reach within two inches of the ground level. Pack the soil tight around each root section, then cover all to level of ground. After first frost cover with coarse manure for winter protection, removing same in spring.

## LIGHT ON FRUIT PROBLEMS

Prof. J. W. Crow, O.A.C.

### Transplanting Raspberries.

Kindly advise if fall transplanting of Red Raspberry bushes is satisfactory.—H. S.

Fall planting of raspberries is satisfactory, and is, indeed, the best practice. The best plan is to use only the stout, young canes, and if such are transplanted with a goodly proportion of root attached, they will become thoroughly established and gain a marked advantage over spring set plants. The last of September and the early part of October is the best season.

### Bark Bound Pear Trees.

Would like advice regarding bark bound pear trees. Bears scarcely any fruit, fruit cracks. Tree about seven or eight years planted. It was scored up the trunk about three years ago, bore good fruit next year after being scored. Soil heavy clay and limestone. Do not know variety.—R. O.

Your tree is scarcely old enough to bear, as very few pear trees fruit to any extent under eight or nine years or more. The scoring of the trunk may do no harm, and might even be beneficial providing it is done in mid-summer, so as to allow time for the wound to heal properly. The scoring might possibly have some slight influence in hastening the bearing, but I question whether the method is of any particular importance. I can only advise you to keep the tree in healthy, vigorous condition, being careful always to avoid over-forcing, which would induce winter killing. Pruning should be moderate, and should consist of removing the small branches which crowd each other. The cracking of the fruit is probably caused by a fungous disease called pear scab, which is controlled by spraying as for apple scab.

### Best System of Cultivation.

I have an orchard covering 25 or 30 acres, containing apples, pears and plums. It has been in about three and a half years. I have cultivated the land in this orchard every year, either with corn, oats, or barley. It is my desire to create a nice sod, so that I will not be under the expense and trouble every year of plowing and harrowing. It has been well manured and the growth of weeds is considerable. At present the orchard is plowed, disced and harrowed. I would appreciate a suggestion from you as to what to do.—B. N.

I should strongly advise against putting this young orchard down entirely to sod. If you could leave a strip for cultivation on each side of the rows of trees, you could put the balance down in sod without danger of serious injury to the trees. This strip should not be less than five or six feet on each side of the tree, making ten or twelve feet in all. I am, of course, taking it for granted that this land is well drained and never likely to be seriously wet. If you want this orchard to do its best, it should certainly be tilled annually, although tillage should not be overdone nor continued too late in the season. Cultivate thoroughly from early spring until July 1st. At about this date it should be seeded with a cover crop which may be ploughed down at the regular fall ploughing or left until spring.

You could continue to inter-crop these trees for several years yet, and with my limited knowledge of the situation, I would venture this statement—that you would get better satisfaction by two or three years more of inter-cropping, with crops like early potatoes, early corn, or something which does not require late cultivation, than you would be putting the whole or any part down in sod.

### Unproductive Plum Trees.

We have a lot of Burbank plum trees which though now of full size, the largest being 16 inches in circumference, have never yet borne a crop. They grow luxuriantly, blossom freely but when the fruit has reached about the size of a grain of wheat, it turns yellow, dries up and drops off. Have you any idea of the cause of this unfruitfulness and can you suggest any remedy.—N. T.

It is scarcely possible that these trees are Burbank, as I have never known a case where Burbank failed to bear early and heavily, whether other plums were found in the vicinity or not. The Burbank tree is very distinct in type, the branches being few in number and are horizontal and drooping rather than upright. The probability is the trees you have belong to a variety which is self-sterile. The only remedy is to top-graft in a few scions of some other kind, or plant other varieties to blossom at the same time.

As a rule, most pistillate varieties of strawberries are more hardy, surer croppers and more productive than bisexuals. They are not weakened by pollen secretion, because they produce no pollen.



# The Prospects for Fruit Growing\*

D. Johnson, Dominion Fruit Commissioner, Ottawa

**W**HAT are the prospects for fruit growing in Canada? The situation created by the world war is leading many fruit growers to ask this question. In reply to it, I think we may well learn a lesson from what has happened in connection with the large apple crop that was produced in Nova Scotia last fall.

Last June it was my privilege to visit the Annapolis Valley and meet many Nova Scotia fruit growers and discuss with them matters pertaining to the fruit growing industry. It was apparent that they were much concerned as to what they were going to do with their apple crop. The trees gave promise of a good crop, but the future markets were clouded with uncertainty. There appeared to be no prospect of the British embargo being raised, and Nova Scotian apples were not well known in the consuming markets of Ontario and the prairie provinces.

It was freely predicted that there would be great difficulty in disposing of the crop. In fact, several delegations visited Ottawa, pressing upon the Government the necessity for taking every action possible to advertise Nova Scotian fruit, and if possible assist in its distribution, as well as leaving no stone unturned to have the British embargo raised.

In spite of embargoes, in spite of the fact that the fruit was not well known and although the Nova Scotian shippers had to exploit new territory, the Nova Scotian apple crop of 1917 has passed into commercial channels at prices which I believe have been more remunerative and perhaps the most profitable that the province as a whole has ever experienced. Therefore, we see that the unexpected has happened, as indeed it has in connection with each apple crop since the outbreak of war; each spring "blue ruin" has been talked by the fruit growers and each year satisfactory prices have been realized by the growers who cared for their orchards and produced the higher grades for which there is always a market. I certainly feel that there is no reason why a commercial fruit grower should neglect his orchard. Nova Scotian apples have a reputation to-day far superior to that of the past. They have this year, by their good packing, established a reputation that will be of great assistance to them in

the future marketing of their crop. Your apples will be in much greater demand than ever before, and even though the British market should be closed, you have gained new markets which will be assured to you if you continue to pack your fruit as you have done during this season.

It is probable that 1918 will see a fair crop of apples in Ontario, although I do not expect a big crop. Farm labor is so short in that province that the farmers are devoting their time to other lines of agriculture from which the returns are more certain. Many orchards have been neglected during the past three years, and it will only be by unusual climatic conditions that a good crop of high quality will be developed in that province. Therefore, I would urge you to take the usual good care of your orchards, realizing the fact that high quality fruit will always be in demand. It is the poor, trashy grades that are hard to dispose of. Even though a big crop should be harvested during the coming season, as I have said before, I believe there is no reason why you should not be able to greatly extend the home markets if prices to the consumer are moderate and the quality of fruit good.

We cannot expect, however, that

prices will be as high during the coming season as they have been for the crop of 1917. The Ontario crop last year, as you know, was practically a failure; so also was Quebec. These provinces have this year become great consuming markets. Districts in Ontario that were formerly extensive shippers of apples have been importing carload after carload of Nova Scotian fruit. It cannot be expected that such a condition will exist in 1918. Ontario will be able to ship apples to the west and also to the Quebec markets. Therefore, it will be all the more important that you should continue to pack your fruit up to the high standard attained by the best shippers of the Valley this year. Only last year it was freely stated that Nova Scotia could not reach the Ontario standard of pack. This has proved untrue. In Toronto, Montreal and Winnipeg, dealers frankly state that your apples are quite up to the Ontario standard.

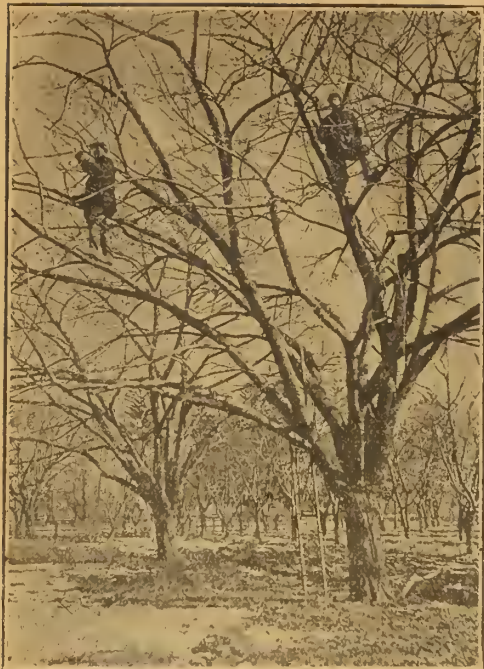
The Food Controller will, I believe, be a great factor in the distribution of the 1918 apple crop, not by display advertisements, but by an educational campaign in which the public will be urged to eat fruit and vegetables instead of concentrated foods, such as meat and bread. I believe that in a



A well loaded Wealthy apple tree in the orchard of W. A. Fraser, Trenton, Ont.

\* An address delivered at the recent annual convention of the Nova Scotia Fruit Growers' Association.





Trimming up the old trees. Photo taken in orchard of W. Webb, East Hamilton, Ont.

## Spraying Cherries for Best Results

Howard Leavens, Bloomfield, Ont.

**I**N giving our experience in spraying sour cherries I do not care to influence other growers to follow our methods. They may have had as good or better results from their work with different solutions or by other methods.

For some three or four years previous to 1914 we sprayed with lime sulphur. This spray was being advocated and widely advertised at that time. In 1914 we did not have any crop, but we had considerable shot-hole fungus. The crop failure was due to the severe weather of the previous winter. The shot-hole fungus, in our opinion, was not checked by the lime sulphur spray.

In 1915 we sprayed all but one small orchard with bordeaux. The results were very satisfactory, except in the one orchard which was sprayed with lime sulphur. There was a very heavy crop that season. The trees sprayed with lime sulphur lost a great deal of their foliage before the crop ripened. Through the heavy crop and loss of foliage in this orchard we lost about 25 per cent. of the trees the following spring.

With these results in mind we sprayed with bordeaux entirely in 1916, with the exception of a couple of check rows, which were sprayed with lime sulphur. This small experiment was more a happen-so than a plan. There was a young apple orchard of about three acres planted beside a six-acre cherry orchard of the same age. The apple trees were sprayed with lime sulphur solution. Enough was left in the tank to cover two rows of cherry trees. Two rows were so treated, after which the bordeaux mixture was used to finish—the cherry orchard. We did not put any bordeaux on the two rows that season. I would not call this an experiment except that the results were very noticeable in that about picking time the two check rows of cherry trees lost practically one-half of their foliage and the rest of the orchard held its foliage until fall. These two rows ripened their cherries, but in quality or size were not equal to the balance of the crop.

Last season we used bordeaux on all the cherries with the exception of about 100 trees that were set in a mixed orchard of apples and plums. The apples and plums were sprayed with the lime sulphur solution. We did not take time to change the mixture, so the cherries were sprayed with the same mixture as the apples. Again we had the shot-hole fungus on these trees. The rest of our orchards were very free from it.

The shot-hole fungus is our hardest proposition to fight, for as yet our trees have been very free from other diseases. We have some black knot, but we keep it in check by pruning and also by giving the small boys a bonus for all they find at picking time. We have had practically no rot or wormy fruit to contend with. Probably thorough spraying has kept this in check, so that it has not been noticeable.

We have not given a dormant spray the leaves are well started. This is about the time the blossoms have fallen. For some years. Instead, we wait until As soon as the shucks have fallen from the cherries we apply the second spray.

In the first spray we use the arsenate of lead. Not quite as much is used as in the second spray. In the first spray we use about two and one half pounds to 40 gals. water, and in the second from one to one and one-half pounds more. We use four pounds of bluestone to 40 gals. water and from five to six pounds of hydrated lime. This lime is very satisfactory to use, as it is ground and the sediment does not bother the nozzles the same as the unground lime. We usually mix the lime in a solution before putting it in the tank, but have, when in a rush, put it right in the spray tank, and by keeping the engine running have mixed it in that way. The bluestone is got in solution by suspending from 60 to 80 lbs. in a porous sack over a barrel and pouring hot water over it until dissolved.

We use a Bean Duplex spray outfit with two lines of hose. This does very satisfactory work and furnishes all the pressure we need, although for cherries we are not particular about a high pressure, as there is no object in getting the spray in the blossoms. About 225 to 250 pounds pressure is what we use.

In regard to the last spray, sometimes we are later in getting it on the trees than we aim to be, and the cherries are possibly two-thirds normal size before we are through. In that case it is better not to use too much arsenate, also nor an excess of lime. If there are not any heavy rains from the time of putting on the last spray until picking time, the fruit is apt to be discolored by the lime.

Although the bordeaux mixture is not as easily or as quickly prepared, and although bluestone is about three times the price it was in former years, we feel justified in using it in preference to other sprays after our experience of previous years.

year's time the effect of this campaign will be such that people will feel it a national duty to shift consumption to fruit and vegetables. If the price of apples is moderate the quantity used in Canada should be twice or three times the amount used at the present time. The people in our cities and towns are not eating apples; they cannot afford it at \$7 or \$8 a barrel, but at more moderate prices the consumption would be enormous, considering the prices of all other foods.

But I would also advise you to devote part of your time to the production of other crops in addition to apples. You have a fertile Valley, a large proportion of which is not under crop, and there is no reason, in my mind, why large areas should not be planted to grain, potatoes or some other kind of field crop. The necessity of food production is so very great and the world shortage is so evident that apart from the financial return, it is a patriotic duty to do what we can to keep up the food supply of the nation. You are not asked to do this at a loss. Good returns are assured for all kinds of farm products. I am a strong believer in the farming methods employed by men like Mr. Sam Chute, who, while apple growing is his main crop, yet is also a large producer of berries, beans, turnips and potatoes. If all the farmers of Nova Scotia would take a leaf from his book, it would be of great advantage to themselves as well as being the means of making Nova Scotia famous, not only as an apple producing district, but also as an agricultural one.



# Bordeaux, the Vegetable Grower's Friend<sup>+</sup>

S. C. Johnson, Department Agriculture, Toronto

**C**ELERY blight is probably the worst disease that vegetable growers in Ontario have to fight. It is estimated that \$10,000 worth of celery is a total loss annually to vegetable growers around Toronto alone. Many of the smaller gardeners have gone out of the celery business on this account, and as a result their annual returns are considerably lower than when some celery at least was grown. For this reason it was thought advisable to carry on some demonstration work in spraying celery to prevent the disease if possible. A survey of the district around Toronto was taken, and the plots chosen were those which were badly affected during the seasons of 1912 and 1913. In all cases practically all the celery grown during these two years was so badly affected that the sale was impossible. Some of these men had been in the practice of trimming the badly affected stalks and putting thirty-six heads in a bundle in which twelve should be sold. Some growers

These men agreed to allow this work to be carried on and also agreed to co-operate by supplying the necessary horse and labor, and in some cases the machinery. The Department of Agriculture supplied the materials and helped with the work.

It has been recommended by the Ontario Agricultural College and the United States Department of Agriculture that spraying with bordeaux mixture would prevent to some extent the disease known as celery blight. Bordeaux mixture and ammoniacal copper carbonate were used on these patches in the experiments. The plants were sprayed with bordeaux mixture every ten days from the time they came through the ground until the first week in September, and some until ten days before the celery was sold or pitted. A "Knapsack Sprayer" holding five gallons was used while the plants were in the plant bed and various kinds of spray rigs used in the field. On the two patches of 10,000 each the knapsack

of ten days as directed. This crop proved unsatisfactory, and we cannot find the reason as yet. Seventy-five per cent. of the plants were affected, more or less. It has been suggested that the spray machinery did not put the mixture on in a mist, but in big drops. While the crop has some appearance of this, we cannot state definitely that this has been the cause of the failure.

The celery field of Sanderson Brothers was kept practically free from blight until boarded to bleach. Considerable time was required in the bleaching process, owing to the climatic conditions. About thirty per cent. of the plants became slightly affected with the blight owing to the fact that they could not be thoroughly covered with the spray mixture during the time required for bleaching. From the one-quarter acre \$239.20 worth of celery was harvested, one of the best crops Mr. Sanderson has ever produced upon a similar area of celery.

The late celery covering about one and one-quarter acres was more free from blight than any celery Mr. Sanderson has ever grown.

## What Spraying Did.

Very satisfactory results were obtained on the crop of Mr. McInnes of London East. This field comprised six acres of celery, and a better crop has never been produced upon the place, although celery has been grown here for several years. It was upon this field that we had the most efficient machine. A horse-power spramotor, with nine nozzles, covering three rows, and costing \$144, was used. Mr. McInnes plants his celery rows four feet apart, with the plants seven inches in the row.

Seedling plants were obtained from another section to plant one and one-half acres of this field, and upon these plants were indications of blight. As soon as set in the field these plants were thoroughly sprayed, and a great percentage of the blight disappeared. Not more than 20 per cent. of the plants were affected with the disease, and these only to a limited extent. The remaining four and a half acres of plants, which have been sprayed since they were large enough to permit, are at least 98 per cent. free from the disease. A check of two rows, each twenty rods long, was unsprayed, and at least 75 per cent. of this will never be harvested, being so badly affected with the blight.

## Ninety-five Per Cent. Free.

About 50,000 plants were cared for at Symes Bros.' garden. Six rows left as a check were so badly infested as to be unsaleable, while the rows directly next to them were all sold, with no trimming for blighted leaves. The crop was 95 per cent. free from blight, while that of Mr. Young, ten feet away,



They helped to increase the nation's food supply. A garden conducted by Italian children at Hamilton, Ont.

went so far as to leave the whole diseased crop in the ground, refusing to dig and sell it, as there would be no return for labor.

## A Number of Experiments.

The following gardens in the province were taken in charge:

	Plants.
Charles Dabbs, Mt. Dennis ...	75,000
F. F. Reeves, Humber Bay ...	10,000
Symes Bros., Mt. Dennis .....	50,000
R. H. Tier, Islington .....	35,000
John Tizzard, Humber Bay ...	10,000
Sanderson Bros., Byron .....	25,000
J. J. Davis, Byron .....	25,000
A. McInnes, London East ....	125,000

sprayer was used in the field as well.

Ammoniacal copper carbonate was also used as spray mixture instead of the bordeaux. This was used by dissolving two ounces of copper carbonate in one pint of ammonia (fort) and making up to ten gallons. This was applied in the same manner as the bordeaux. Check plots were left in all cases to determine the value of the spraying, and these were not sprayed during the season.

## One Failure.

One failure must be recorded—in the case of Mr. Davis at Byron. The plants were sprayed carefully, the mixture properly made and applied at intervals

<sup>+</sup> A paper read at the annual convention of the Ontario Vegetable Growers' Association.



which was not sprayed, was practically ruined, the grower having to leave much of it in the ground, and selling the smaller portion at a low figure.

On over 75,000 plants cared for on the farm of Mr. Charles Dabbs at Mt. Dennis, we can report 98 per cent. good celery. This plot showed clearly that we could grow good celery, free from blight.

#### Cost Per Acre Detailed.

The full detailed cost of operations on one and one-half acres may be of interest:—

70 lbs. lime at 40c per bushel . . .	\$0.40
70 lbs. bluestone at 7c . . . . .	4.90
3 pints ammonia at 25c . . . . .	.75
5 ozs. copper carbonate at 25c . . .	.80
Manual labor, 52 hours at 15c . . .	7.80
Horse, 40 hours at 10c . . . . .	4.00

For 1½ acres . . . . .	\$17.93
For 1 acre . . . . .	12.00

#### Rules for the Work.

The following points were observed in the course of the work:

Spraying thoroughly at least every ten days is necessary to success.

Spray every two days in hot, muggy weather, as disease spreads rapidly.

Spraying in seel-bed makes plant free from disease, and seems to give greater vigor.

Only spray machinery which gives sufficient force to apply mixture in a mist is to be recommended.

It is advisable and almost necessary that plot should be sprayed twice on same day, thus insuring complete covering of leaves.

Thoroughness and regularity in spraying are essential.

#### Spray Checks Thrips

Spraying affected plants with nicotine sulphate solution has proved effective to rid greenhouses of thrips. Fumigation with tobacco stems and the use of nicotine liquids evaporated over steam pipes or lumps have also aided in checking the ravages of these insects.

The formula for spraying used by entomologists of the Ohio Experiment Station is to dilute 40 per cent. nicotine sulphate in 1,500 parts water. About two pounds of soap dissolved in water, is added to each 50 gallons of this spray to make it spread better. A pound of flour stirred into four gallons of water and added to each 100 gallons of diluted spray may be substituted for the soapsuds.

Fumigating the greenhouse by burning a pound of tobacco stems to a thousand cubic feet of space has been useful. An ounce of 40 per cent nicotine to each thousand cubic feet of space kills thrips if it is evaporated

over a small stove or lamp or poured on the steam pipes in the house.

Thrips are small brown insects that corrode the surface and suck juices from their food plants. This causes a white speckling of the plants or fruits attacked. Carnations, roses and cyclamens are especially liable to injury.

#### February Reminders

Order seeds now.

Some early garden and flower seeds may be sown now.

The wild and Beta grapes make good covers for a trellis.

Test all seeds on hand. Flannel and blotting paper are good materials to use.

Repair all tools and buy such new ones as are needed.

Now is a good time to put up bird houses.

Autumn-bearing strawberries planted this spring should give plenty of fruit this fall.

Autumn-bearing strawberries that fruited this autumn may be allowed to fruit next June and should then be plowed under.

Piece grafting of apple roots may be done at this time of year. Seedling apple roots and cions of 1915 growth may be used.

Clematis paniculata is one of the best fall-flowering vines for a trellis. It may also be used as a cut flower.

Early celery, cabbage, and cauliflower may be sown now.

Winter landscape scenes may often be made as pretty as those of summer. Study the views from your house. Can they be improved?

Double tulips give the best flowers, if they are not brought into the forcing house or living room until late in February. Single tulips may be brought in now.

Be sure to get a good strain of seed, especially of cabbage, tomato, and onion seed. The rule also applies to florist plants, such as pansies, verbenas, and petunias.

Remember that plants newly brought from the greenhouse have been used to plenty of moisture in the air. A good way to apply moisture is to set the plant in a pan of water and sprinkle the foliage, allowing it to take up plenty of water through the roots.

Perennials and many flowering shrubs show off best if planted before a background of dark green shrubbery.

Get the horse manure ready for hot-bed use. It should heat evenly and should not get hot enough to burn.

Now is a good time to get boys and girls to thinking about a garden. Give them the use of some land. Let them send for seed catalogues and order their seed now. It might pay to let

them manage the garden and buy the vegetables from them.

Plants require fresh (not cold) air. Do not try to grow them in a close, stuffy room. Hotbeds should be ventilated on warm, bright days.

It is often a good plan to break the snow crust about evergreens or other plants, the branches of which are covered with drifts, to prevent their breaking down.

Portulaca is one of the best annuals to plant in a hot, sunny place. It does well in light soil if it has sunlight.

Bring up some of the bulbs from the cellar. They should furnish flowers for a larger part of the spring months.

If cosmos is used get early varieties. The late sorts must be started early and even then do not always flower.

The annual poppies are splendid to plant in wild corners. They grow easily and are not particular as regards soil so long as they have plenty of sunlight.

Don't throw away the old bulbs after they have flowered. As soon as the ground can be worked, plant them in the shrubbery or garden. You will get some flowers from them again, but they should not be forced.

Branches of pussy-willow and of some of the early-flowering plants, if brought into the house or greenhouse and put in water, will bloom very quickly. It is well to spray the twigs often to prevent their drying too fast.

Seed of pansies and other early flowers may be sown now and the plants transplanted as soon as large enough.

#### How to Kill Ants

Cultivation or treatment with carbon bisulphide will generally rid beds in greenhouses of ants. Poisoned sweetened baits are also used effectively for this purpose.

Stirring the soil every few days discourages ants, and they leave such places. Two tablespoonfuls of carbon bisulphide poured into a hole punched into their nest will form a heavy gas that settles down through the nest and kills the ants. The holes should be closed with earth as soon as charged with the dose.

The following bait is recommended by the Ohio Experimental Station: Boil together for 30 minutes 15 pounds of sugar, 7½ pints of water and a fourth of an ounce of crystallized tartaric acid. Also dissolve slowly three-fourths of an ounce of sodium arsenite in half a pint of hot water. After both solutions cool, mix them along with a pound and a half of pure honey. This poison may be soaked up with sponges laid on the beds, or it can be sprayed on sheets of paper or boards.



# Sprays for Flowers and Small Fruits

Arthur Gibson, Chief Assistant Entomologist, Dept. of Agriculture, Ottawa

**F**LOWERING plants in gardens and the widely grown bush fruits, such as gooseberry, currant, raspberry and blackberry, are every year troubled with insect enemies of various kinds. The insects which cause the most important damage are those which feed upon the stems and foliage. Chief of these are the scale insects, such as the Currant Soft Scale, the Blackberry Soft Scale, the Scurfy Scale, and the Oyster Shell Scale, which are frequently found seriously infesting bush fruits. They may be controlled by spraying with lime-sulphur wash in the spring before growth begins, or earlier during the dormant period. Where only a limited quantity of spray mixture is required, commercial lime-sulphur wash would be useful, and may be applied before growth begins, in the strength of one gallon diluted to ten gallons with water. Pruning beforehand will remove all unnecessary wood. The spraying should be done thoroughly, so as to hit all of the scale insects.

## Foliage Insects.

Few kinds of garden plants are free from injury by the various kinds of plant lice, known also as "Aphis" and "Green Fly." Ornamental bushes, such as the snowball, are rendered unsightly by the curling and deforming of the leaves caused by these insects. Resulting from their attacks, the foliage of bush fruits becomes blistered and much distorted. To control such sucking insects, a good contact insecticide must be used, and the first application made when the plant lice are first noticed and before they cause the leaves to curl. Kerosene emulsion, soap mixtures, or tobacco preparations are all useful, but whichever is used must be applied so as to reach the places where the insects are clustered, otherwise the spraying will not be effective. Owing largely to ease of preparation, soap washes and tobacco preparations have of recent years been widely used against plant lice.

Whale oil or fish oil soap should be used in the strength of one pound to four gallons of warm water for brown or black plant lice, and in the strength of one pound to six gallons of water for the green kinds. Home-made or good laundry soap is often as effective as whale oil soap. Trade preparations containing 40 per cent. nicotine sulphate are sold extensively, and for small gardens one teaspoonful to one gallon of water is the usual strength. If a larger quantity is required, one fluid ounce (8 teaspoonfuls) is sufficient for eight gallons of water, and in this one-half a pound of hard soap should be added as a spreader.

The foliage of flowering plants and bush fruits is seriously affected by leaf-eating caterpillars of various kinds. Some of the better known of these are the currant-worm, the oblique-banded leaf-roller, the rose slugs, the woolly-bears and the leaf-beetles.

These defoliating insects may, as a rule, be readily killed by spraying with either of the widely used stomach poisons, namely, paris green and arsenate of lead. The former is usually recommended in the strength of four ounces to forty gallons of water, with about half a pound of fresh lime added. When only a few plants require treatment, one teaspoonful of paris green, with the same quantity of lime, to one pail of water is sufficient. Arsenate of lead remains on the foliage longer than does paris green, and for this reason is preferred by many gardeners. Powdered arsenate of lead is used in the strength of two pounds to forty gallons of water; paste arsenate of lead in the strength of four pounds to forty gallons. For use in small gardens, one tablespoonful of the paste or one dessertspoonful of the powdered arsenate of lead is sufficient for one gallon of water.

When currants or other fruiting plants are infested by leaf-eating insects at a time when the fruit is approaching maturity, fresh hellebore should be used, either dusted over the infested bushes, or as a spray in the

strength of one ounce to each gallon of water. If used dry, it may be mixed with air-slaked lime in the proportion of one part of hellebore to four parts of the lime.

Red spider mites are commonly found on a great variety of garden plants, particularly during dry seasons. One of the best remedies is to spray the plants with the following sulphur-soap mixture: Flowers of sulphur, one ounce; laundry soap, two ounces; water, one gallon.

Dissolve the soap in the water, then add the sulphur and spray the mixture in such a way as to reach the undersides of the leaves where the mites are. A short rod with elbow at nozzle end is advisable.

## The Amaryllis

Mrs. M. L. Countryman.

One of the best house plants, prized for its gorgeous red lilies, is the Amaryllis, a native of the Cape of Good Hope. Not only is it a most beautiful plant in bloom, but its lasting period of bloom occurring twice in each year, and its long life, both make it worth raising. In the north it is a house plant in winter.

The Amaryllis should not be disturbed often, and should never suffer a temperature below forty-five degrees. The blooming temperature is about sixty degrees. When resting they stand a higher temperature.

In practice, my pots have not been disturbed for at least eight years, but during the winter I use Bowker's Plant Food, usually putting about a teaspoonful on the soil of the pot perhaps once in six weeks.

They stand on the west window sill on the stair landing, are watered only when dry, and then the pot is really wet through. Quite frequently they are put into the bathtub and sprayed. When it gets warm in summer they are put out under the rose bushes, where it is warm but quite shady. No one pays any attention to them except that along in August I begin to watch for buds, for mine bloom in the late summer and at Christmas time.

We have hot air heat, and until this year have lighted with gas—so they do not mind gas as soft-leaved plants do.

Books say you can raise them from seed, it requiring three years. The Equestre forms many small bulblets; the Johnsoni is not so free to do so. I take out the small bulbs and give or throw them away. I have never let them go to seed. They are most satisfactory house plants.

Plant a few currants, gooseberries, and raspberries this spring. They are easy to care for and will repay any one.



A Handy Sprayer.

This sprayer is useful in the small garden. The operator is spraying currant bushes for the green worm.



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The Only Magazines in Their Field in the  
Dominion.

Official Organs of the Ontario Fruit  
Growers' Association, and of the  
Ontario, Manitoba and New Brun-  
swick Beekeepers' Associations.

1. The Canadian Horticulturist is published in  
three editions on the 25th day of the month  
preceding date of issue in three editions, as  
follows:

**FRUIT EDITION:** This edition is devoted  
entirely to the interests of the commercial fruit  
and vegetable growers of Canada.

**FLORAL EDITION:** This edition is devoted  
to the interests of amateur fruit, flower and  
vegetable growers, and includes a section for  
backyard gardening. It meets the requirements  
of town and city people especially.

**APICULTURAL EDITION:** This edition is  
known as The Canadian Horticulturist and Bee-  
keeper, and is devoted to the interests of the  
beekeepers of Canada. In this edition several  
pages of matter appearing in the first and  
second issues are replaced by an equal number  
of pages of matter relating to the beekeeping  
interests of Canada.

### SUBSCRIPTION RATES

The subscription rates of the Fruit and Floral  
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One year .....	\$ .50 cts.
Three years .....	1.00
To societies and associations ..	.40 cts.
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The subscription rates of The Canadian Hor-  
ticulturist and Beekeeper are:

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Three years .....	2.00

For foreign subscriptions and subscriptions in  
the city of Toronto, owing to the postal regula-  
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### CIRCULATION STATEMENT FOR JANUARY.

Fruit Edition .....	2,016
Floral Edition .....	4,686
Beekeeper .....	1,525

Total printed .....	8,227
	8,627

Advertising rates, \$1.40 an inch. Copy re-  
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Manager, Peterboro, Ont.

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turn away all unscrupulous advertisers. Should  
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reported to us within a week of its occurrence,  
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Rogues shall not ply their trade at the ex-  
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through the medium of these columns; but we  
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tween subscribers and honorable business men  
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Communications should be addressed

THE CANADIAN HORTICULTURIST,  
PETERBORO, ONT.

## EDITORIAL

### Realizing the Situation

If there was need last year for greatly  
increased production in the commercial  
orchards, as well as the backyard and va-  
cant lot gardens of the Dominion, that need  
is vastly greater this year. Few in Canada  
realize how acute that need is. It seems  
as though it is not until we see people in  
actual want or we are faced with the impos-  
sibility of satisfying our own needs that it  
becomes possible for most of us to actually  
realize the seriousness of a situation concern-  
ing which we may have been warned for  
months.

In portions of Europe and Asia thousands  
of people, including little children, have  
already died of starvation. The area affect-  
ed by the food shortage has increased, and  
continues to increase rapidly. Lord Rhonda,  
the British Food Controller, said recently:

"The food wanted by mankind does not  
exist. The word 'shortage' is not strong  
enough for the situation. To put the mat-  
ter bluntly, the world is up against a nasty  
thing, familiar to the people of India, called  
'famine.'"

While, so far, the effect of these condi-  
tions has fallen mainly on more remote dis-  
tricts of Europe and Asia, their effect is  
already becoming apparent in countries  
with which we are more familiar, such as  
Holland, Sweden, and even Great Britain,  
where meat, butter and milk are already  
difficult to purchase, while oils and fats  
are practically unobtainable. The people  
of this continent will be the next to feel the  
pinch, and should crops prove poor this  
year the pinch will be a hard one.

In view of these conditions it is not to be  
wondered at that urgent appeals are being  
issued to the people of Canada to grow all  
the vegetables and fruit this year they can  
possibly produce. This brings a great re-  
sponsibility home to the people of our  
towns and villages who have gardens or  
land capable of being used for that pur-  
pose. In the country the farmers and fruit  
growers are short of help and are working  
to the limit of their strength. In our towns  
and cities there are thousands of people  
who after office hours can raise enough  
vegetables and fruit, not only for their own  
use but for that of many other families as  
well. Let everyone of us who can do so  
resolve to do our part to meet the situ-  
ation, so that later we will not feel that  
people are forced to go hungry in part, at  
least, because of our failure to meet the  
need about which which we have been so  
plainly warned.

### Grading Potatoes

The Food Controller's department is to  
be commended for its action in urging Cana-  
dian potato growers to commence grading  
their crops. Such action would result not  
only in higher prices but greater gross re-  
ceipts. Field-run potatoes, unsorted, sell  
from ten to twenty per cent. a bushel less  
than graded stock. By sorting the crop,  
picking out the culls, and feeding them to  
live stock or selling them for that purpose,  
the growers receive a sufficiently higher  
price for the graded crop to more than

offset its decrease in bulk. But others also  
benefit. The shipper has less to handle,  
there is a saving in car space, and the con-  
sumer is benefited through obtaining a bet-  
ter class of potatoes. In Great Britain the  
law already has intervened in this matter.  
The sale of potatoes under a certain size  
is not permitted. Small potatoes must be  
invoiced as damaged or undersized.

Grading would soon result in greater uni-  
formity in the varieties of potatoes grown.  
Instead of the dozen and one varieties that  
now may be found in any district there  
would soon be only two or three of the best  
varieties grown. This alone would be a  
very material benefit.

### Commission Houses Prosecuted

Many firms in the United States that have  
been handling fruit and vegetables on a  
commission basis are considerably con-  
cerned over the new condition of affairs  
that has arisen through the action of the  
United States Food Administration Bureau  
in resolving to protect producers who ship  
goods to these firms on a commission basis.  
In the past, firms in the United States as  
well as in Canada, who have had an inclina-  
tion to make false returns have largely had  
the shippers at their mercy. They often  
have forced producers to accept prices for  
their products that were below their real  
value. This condition appears to be coming  
to a close in the United States.

Some weeks ago a Michigan shipper for-  
warded two carloads of potatoes to Morris  
Singer & Company, a Washington, D.C.,  
commission house. This firm refused to  
accept the consignment and allowed two car-  
loads to spoil. The case came to the atten-  
tion of the Food Administration Bureau,  
which found that the commission firm was  
unable to furnish a good excuse for its ac-  
tion. The result was that the commission  
dealer's license was revoked, and the firm  
was ordered to post a sign that it had lost  
its license. It was informed, also, that the  
penalty for illegal operation would be a fine  
not exceeding five thousand dollars or im-  
prisonment for a term not exceeding two  
years, or both. Action of this character is  
drastic. It has been made desirable, how-  
ever, in the case of some firms by their  
unfair dealing. Should a few more firms  
be treated as was this firm it should re-  
sult in a great improvement in conditions.

### Free Trade in Food

Articles published recently in the daily  
press, and bearing every indication of be-  
ing semi-official in character, have intimated  
that the United States and Canada are likely  
shortly to pool their food resources. This  
means that free trade in food products will  
be introduced between the two countries.

Looked at from the standpoint of the two  
nations concerned, much can be said in  
favor of such a policy. Viewed from the  
angle of fruit and vegetable growers, it will  
entail hardship unless these industries re-  
ceive compensating advantages. Canadian  
growers, because of the tariff, are forced to  
pay higher prices for fertilizers, spraying  
machinery, insecticides, and other supplies  
than the growers in the United States pay  
for similar articles. It will be manifestly  
unfair to expect Canadian growers to com-  
pete against United States grown products  
under such a handicap. If there is to be  
free trade in food products, then of neces-  
sity there should be free trade also in the  
essentials for producing such products. The



## Our Late Issue

This issue of The Canadian Horticulturist will reach our readers somewhat later than usual.

The order of the Fuel Controller shutting down business establishments for two days congested work in the composing and press rooms and delayed publication. These are days, however, when we take such things cheerfully and all for the good of the cause.

imperative necessity for greater production is another compelling reason why this side of the situation must not be overlooked.

Fruit growers have suffered possibly more than any other class in the community through high and often unfair freight and express rates on fruit. The recent announcement, therefore, by the Dominion Government that the proposed increase of 15% in rates would not go into effect until the situation had been further investigated was a welcome one to fruit growers. The problem of what to do with our two bankrupt transcontinental railway lines is a difficult one to solve, but it is manifest that the best method of solving it does not consist in allowing a general increase in rates which would have the effect of handing twenty million dollars more a year into the coffers of an immensely wealthy corporation that has not lived up to the spirit of its agreement with the people of Canada in regard to the distribution of its large annual profits exceeding ten per cent.

## SOCIETY NOTES

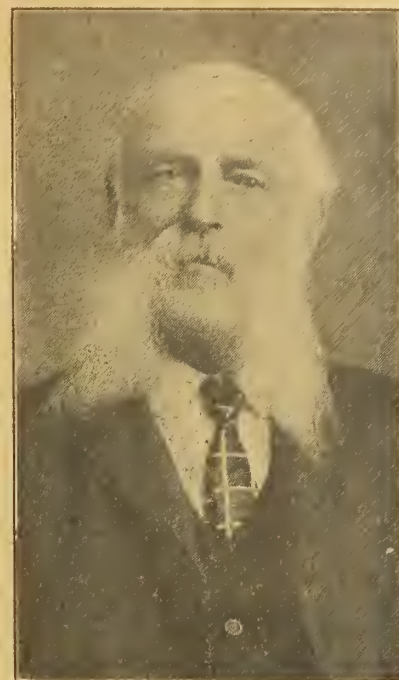
### A Useful Memorial

The Thornhill Horticultural Society has adopted a very practical method of showing its appreciation of the late R. A. Nisbet, its first president. After the death of their president the members of the society decided to offer a prize, to be known as the R. A. Nisbet Memorial Prize. The purpose for which this prize may be given each year can be changed at the discretion of the directors. Last year it was given for the best lawn and garden. This year it will be offered for the best collection of named vegetables, not to exceed fifteen varieties, the number in each variety to be the same as that given in the general list of vege-

tables. It will be offered to amateur gardeners only, and in every case the exhibitor must be the grower of the vegetable shown. A second prize of five dollars will also be given by the society. As the late Mr. Nisbet was a great admirer of perennials, and had made his own grounds beautiful with plants and shrubs, the prize in 1919 is to be offered for the best collection of named perennials. Does this prize not offer a suggestion which might be profitably followed by other societies?

### A New Society

A new horticultural society was organized at Agincourt, Ont., during January with the



Mr. Chris Firth, Durham, Ont.

following officers: Honorary presidents, Capt. E. N. Coutts, who is now in Switzerland, and Mrs. George Henry; president, George Padget; first vice-president, Mrs. T. A. Patterson; second vice-president, Mrs. T. Weir; directors, Messrs. Frank Weir, A. Doherty, Henry Kennedy, John Elliott, Bert Kennedy, W. H. Patterson and Mesdames Preston, J. Quantz and Wm. Murray.

### A Horticultural Enthusiast

The great work that has been accomplished by the horticultural societies of Ontario during the past 30 years has been made possible only by the faithful, well-directed efforts of a few men in each locality who year after year, often in the face of great discouragements, have given freely of their time and effort to promote their work. Such a man is Mr. Chris Firth, who, about 20 years ago, helped to found the Durham Horticultural Society, and remained its secretary until about a year ago. At the time The Canadian Horticulturist was established 40 years ago, Mr. Firth became one of its first subscribers, and still has his receipt for his first subscription. Recently he wrote us: "I don't believe you have a half dozen subscribers whose subscriptions date back as far as that." We don't believe we have, but should there be we will be glad to hear from them all. Some two or three years ago we knew of only two.

Mr. Firth retired last year from the secretaryship of the Durham Society, his long period of service having entitled him to be relieved from office. It is well for the cause of horticulture that we have an considerable number of men like Mr. Firth in connection with our horticultural societies, who are ever willing to forego their own convenience to promote the public good.

Frequently very interesting papers on garden subjects are read by members of horticultural societies at the meetings of their local societies. The secretaries and directors of these societies are invited to forward these papers to The Canadian Horticulturist for publication. Their receipt will be appreciated, and many will be published.



A New Horticultural Building at Mitchell.

The members of the Mitchell Horticultural Society are proud of their building erected recently for horticultural purposes on the grounds of their local agricultural society. It facilitates the making of a fine display of horticultural products.



## The Fruit and Vegetable Committee's Activities

F. H. Grindley, Assistant to the Fruit Commissioner, Ottawa

THE Dominion Fruit Branch has been closely associated with the Food Controller's office ever since the Fruit and Vegetable Committee was organized last September. Since that time the committee has made considerable progress, and results of a satisfactory nature have been accomplished.

One of the first matters taken up by the committee was the marketing of the Nova Scotian apple crop. Prior to this season the British markets had disposed of practically all the exportable apple surplus of Nova Scotia, but an embargo in 1917 placed the Annapolis Valley growers in the position of having no apparent market. The failure of the apple crop in Ontario suggested a new market in Western Canada. The Food Controller therefore gave special attention to the western movement of Nova Scotia apples, and a considerable quantity has been marketed there in a most satisfactory manner. Out of a total yield of about 650,000 bbls., practically 500,000 bbls. have been shipped, and no difficulty is anticipated in moving the remainder before spring. The demand for apples in the prairies and in eastern Canada generally would, of course, have been greatly lessened had there been a normal crop in Ontario last year. At the same time, the fact that Nova Scotian fruit has been successfully marketed in large quantities as far west as Regina and Saskatoon shows the possible advantages of developing this trade, especially while the British embargo remains in effect. In connection with this work particular credit is due to Mr. George E. McIntosh, Transportation Officer of the Fruit Branch, and Mr. George Spencer, of the Railway Commission, for their valuable advice and co-operation; and also to Mr. H. H. Schaefer, who was appointed by the Food Controller to take charge of the distribution of the crop, supply of cars, loading, etc. Mr. Schaefer has been located at Kentville, N.S., since last autumn.

### Marketing Fruit and Vegetables.

In order to provide for the movement of fresh fruits and vegetables through more economical channels of distribution, the committee divided all handlers of these commodities into certain specified classes, clearly defining the functions which each class was to perform. This arrangement affected not only the distributors in marketing centres, but also covered all co-operative organizations, buyers and commission packers at points of production. The commercial fruit and vegetable industry was thereby placed on a more satisfactory basis than heretofore. The fact that the functions of all handlers are defined is an assurance to the public that no undue profits are being made by unnecessary "middle-men."

Following this arrangement, and in direct connection with it, a system of licensing was instituted, which provided that on and after February 1st, 1918, no person or firm could be engaged in the distribution of fresh fruits and vegetables without first obtaining from the Food Controller a license covering his particular branch of distribution.

Several very valuable and lasting results will be accomplished by the introduction of these regulations. No license will be issued unless the applicant is known to be performing a legitimate function; the taking of any undue profits by license holders will be prevented by the danger of immediate

suspension or cancellation of license; speculation will be eliminated for the same reason; license holders will be assured that they have no unfair competition to meet, since all will be known to be performing necessary duties. All these, and more, are benefits which are bound to result.

### The Potato Situation.

The potato situation has been a difficult one to adjust. Early in the season it was estimated that there was a surplus of about ten million bushels of potatoes in Canada, with little or no prospect of exporting any large quantity to the United States, owing to a proportionately large surplus in that country. Some weeks later, before harvesting had been completed, serious frosts and blight reduced these estimates considerably. There were still, however, sufficient potatoes in Canada to supply even an increased rate of consumption until the 1918 crop would be available. It was therefore presumed that potatoes would reach consumers at reasonable prices during the winter months.

But this did not happen. Farmers, having in mind the high prices prevailing in the spring of 1917, stored their surplus stock and thereby reduced the available supply. Transportation conditions were unsatisfactory, and further interfered with the free movement of potatoes to the distributing centres. A similar state of affairs in the United States caused an influx of American buyers to Canada, stiffening prices and giving farmers a wrong impression as to the total supply. Prices to Canadian consumers have consequently remained at a fairly high level in spite of early indications to the contrary.

Two plans have been put into operation to ensure reasonably cheap potatoes. One was to organize a winter movement of Prince Edward Island potatoes to the large consuming centres of eastern Canada, making use of the car ferry now being operated by the Canadian Government Railways between the Island and the Mainland; the other plan, as an alternative to fixing prices, was to issue a press notice, emphasizing the fact that there was a large potato surplus, and that unless farmers marketed their stock at once there would be a glutted spring market with severe losses and waste. Coupled with this notice an appeal was made to the wholesale trade to make purchases from farmers on the basis of lower prices to the consumer.

The marketing of Prince Edward Island potatoes has so far been difficult. A number of box cars were lined on the Island by the railway company and fitted with heaters for protection against frost. Similar cars were available on the mainland at the point of transfer, in which shipments were to go forward to destination. The Dominion Fruit Branch gave the services of a number of fruit inspectors to travel with these cars, under the supervision of Mr. C. W. Baxter, who also had charge of the assembling of cars on the Island and the general organization of the work. Unfortunately, however, the heaviest snowstorms and the coldest weather in the history of the Island have been experienced. Local transportation was blocked for days during each recurring storm; the car ferry was removed for other duties for some days, and this added to the difficulties which had been brought about by inclement weather. Nevertheless, several cars of Island pota-

atoes have been brought to Ontario and Quebec points, rolling through extremely cold weather with only comparatively slight loss. It is hoped that with normal weather conditions and the regular service of the car ferry, potatoes from the Island will be marketed at reasonable prices and in sufficient quantities to convince the Ontario and Quebec farmer, and also the growers in other eastern provinces, of the fallacy of holding stock longer.

The results of the second plan are not yet evident. It is questionable whether farmers will be inclined to market potatoes on the recommendation of the wholesale dealers. Many farmers are independent of the wholesaler and deal either direct with the consumer or the retailer. The lowering of prices will come only when farmers realize that there is a heavy surplus in the country and commence to move their supply into consumption.

If the foregoing plans fail to maintain the price of potatoes at a reasonable level during the winter months, and if farmers still persist in holding stock, the Food Controller is prepared to immediately fix a maximum retail price.

### Grading Potatoes.

The committee has taken up also the question of grading potatoes, and has recently prepared a report to the Food Controller along that line. The report recommends the immediate establishment of three grades: No. 1, No. 2, and "ungraded," the latter grade to include only potatoes of marketable size and quality. The two higher grades differ only in the matter of size and are both clearly defined. This regulation will probably be announced as a recommendation at an early date, and be made compulsory before the potato crop of 1918 is marketed. The grades recommended are practically uniform with those recently established in the United States, so that the exporting and importing of potatoes, when necessary, will not be complicated by a confusion of grade definitions.

Compulsory grading of potatoes will protect everyone concerned. The farmer will be encouraged to market only his merchantable stock and will use inferior stock for feed. He will also take a keener interest in the production of superior grades of recognized varietal characteristics. He will receive better prices for graded potatoes than he has received in the past for stock of mixed varieties and inferior quality. The wholesaler, the retailer and the consumer will be able to make purchases with greater confidence, knowing that potatoes are under Government inspection.

## Treat Seed Potatoes

Soaking seed potatoes for 1½ hours in a solution of 4 ounces of corrosive sublimate mixed in 30 gallons of water, or for 2 hours in a solution of 1 pint of 40 per cent. formaldehyde (formalin) mixed in 30 gallons of water will control scab and rosette diseases. The potatoes should be soaked before cutting, and if not used soon afterward should be spread out to dry. Sacks or crates used for handling or storing treated potatoes should be disinfected with the same solution. The corrosive sublimate is a deadly poison and should be kept from children and animals.

"Why do you have an apple as your trade mark?" asked a client of the cash tailor. "Well, well," replied the man, rubbing his hands, "if it hadn't been for an apple where would the clothing business be?"—Tit-Bits.



## British Columbia Fruit Growers Convene

OWING to the great labor shortage in the fruit districts of British Columbia, the members of the British Columbia Fruit Growers' Association, at their annual convention, held in Victoria in January, decided to petition the Dominion Government to permit the introduction of Oriental labor for the duration of the war and such time thereafter as they may deem proper; such labor to be under strict supervision and for agricultural purposes only. They will also petition the government to conscript all industrial labor, including enemy aliens, under proper regulations as to wages, conditions and nature of work. The vote in favor of this action was thirty-three to five.

British Columbia growers have been anxious to know for some time what they will be able to do with the vegetables and fruit they have been planning to grow during 1918, and if the evaporators are likely to receive orders large enough to help maintain prices. Questions on this point were asked Mr. R. Robertson, representative in the west of the fruit and vegetable committee connected with the Food Controller's Department. In reply, Mr. Robertson said that, as far as he knew, there were no orders in sight. This was not Ottawa's fault. Great Britain had been asked several times by the Food Controller in Canada if she wanted evaporated goods. No definite answer had been received. Last year Great Britain had experimented with a scheme for fixing the price of potatoes. She had fixed a price of £6 per ton. So England turned to and grew potatoes. Now she had all she wanted. Moreover, Spain had been supply-

ing a large quantity of vegetables. Tonnage was safer in that direction apparently than in the northern Atlantic.

The Government at Ottawa has been pressing the Imperial Government for orders for potatoes. Canada had even intimated she would be willing to grow potatoes for storing for the Imperial Government if the latter thought this would be useful. Still no definite information had been secured. This information created almost a feeling of dismay. Next year's convention will be held in Penticton.

### Officers Elected.

The following officers were elected: President, C. E. Barnes, Walthachin; Vice-President, J. E. Reekie, Kelowna; Thos. Abriel, Nakusp; R. M. Palmer, Cowichan Bay; W. E. Chapple, Armstrong; E. E. Taylor, Kelowna; and Secretary, Prof. F. M. Clement, of the University of British Columbia, Vancouver.

District representatives: Victoria, W. F. Somers, Gordon Head; Duncan-Nanaimo, R. M. Palmer, Cowichan Bay; Gulf Islands (south of Fraser), George I. Thornton, Sardis; Mission-Hatzic, F. A. Catherwood; Vancouver-Hammond, J. C. Metcalfe, Hammond; Lytton to Kamloops, C. E. Barnes, Walthachin; Salmon Arm and Armstrong, W. E. Chapple, Armstrong; North Vernon, A. E. Ashcroft; South Vernon, W. F. Laidlaw; North Kelowna, J. E. Reekie, Kelowna; South Kelowna, L. E. Taylor, Kelowna; Peachland-Westbank, Thos. Powell, Peachland; Summerland, R. V. Agur, Summerland; Penticton, R. S. Conklin, Penticton; Similkameen, J. J. Armstrong, Keremeos; Kettle River, M. H. Collins, Grand Forks; Arrow

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Not only for your own pleasure and profit, but as a patriotic duty of first importance, you should plan this year to make your garden produce more than ever before. Rennie's Seeds are essential if you are to do your share in winning the war. Sturdy vigorous stock is guaranteed in the items listed below, each of which have their place in your War Garden.

	Pkg.	½ oz.	oz.	¼ lb.	lb.
Cardinal Globe Table Beet.....	.10	.25	.85	2.50	
Spinach Beet for greens, used as spinach.....	.10		.35	1.00	
XXX Early Summer Cabbage, hard heads.....	.10		.90	2.75	
Cauliflower, Best Snowball, gilt edge.....	.15	.25	1.25		
Paris Golden Celery, extra fine.....	.15	.60	2.00		
Gold Bantam Table Corn.....	.10		.25	.65	
XXX Table Cucumber, early prolific.....	.10		.30	.90	
Select Nonpareil Lettuce, fine heads.....	.5		.30	.90	

	Pkg.	½ oz.	oz.	¼ lb.	lb.	5 lbs
Rennie's Extra Early Red Onion.....	.5		.35	1.00		
Yellow Globe Danvers Onion (black seed).....	.10		.45	1.45	3.95	
Yellow Dutch Onion Setts.....					.35	1.70
Bonny Best Tomato.....	.10		.60	1.75		
Improved Beefsteak Tomato, very large.....	.10	.40	.75			
Dreer's Peerless Pink Aster.....	.15					
Mastodon Pansy-Mixture.....	.25					
Rennie's XXX Spencer Giant Mixed Sweet Peas	.15		.35	1.00		

### For Early Planting

We give herewith a suggestion of seeds recommended for early planting but study your catalogue.

### LOOK FOR THE STARS

Our 1918 Catalogue is the guide to successful war gardening. Consult it at every opportunity. Watch especially the special bargains enclosed in a star border, such as encloses this paragraph. When buying from dealers insist on Rennie's Seeds.

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Select bred Italian Queens and swarms of bees in packages.

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Full colonies—Nuclei—pound packages. Queens of Canadian or U. S. A. stock. Three banded golden Italians.

### THE BEEKEEPER

Can sell your Bees, Queens and Supplies  
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and Slocan Lakes, Thos. Abriel, Nakusp; Nelson and Lower Kootenay, James Johnstone, Nelson; Kaslo and Upper Kootenay, J. H. Hoyle, Queen's Bay; Creston and East Kootenay; Jas Compton, Creston.

It is understood that objections will be registered with the Government against the admission of Oriental labor. In this connection

growers near Penticton have entered the following plea:

"That this meeting does not endorse the resolution passed by the B. C. F. G. A. asking the Government to introduce indentured Asiatic labor, but that we feel, that, for the present we had better try our own countrywomen and girls, also returned soldiers, to gather the fruit in our orchards."

## Seed Outlook for 1918

THE situation in regard to grain, vegetable and flower seeds and the outlook for 1918 is very acute, according to the leading seedsmen of Toronto. When interviewed recently by a representative of The Canadian Horticulturist they agreed that the situation is acute and the outlook uncertain. Never in the history of the seed trade have supplies been so short and the difficulties of procuring them been so great. The shortage of crops, shortage of help and ocean tonnage combine to aggravate a situation already demoralized by over three years of war.

The greatest difficulty appears to be in regard to obtaining adequate supplies of corn seed, fall seed corn and sweet corn being in a deplorable condition. The corn crop in the United States was a failure last year and the United States government has

refused license to export any but certain grades of southern corn. Prices this year for seed corn will be exceedingly high, in fact it may not be a question of price at all, as one seedsmen put it, but a question of getting seeds at any price. Owing to the embargo placed on all supplies coming from across the line and the chaotic railway conditions supplies on the way in some cases from last October have not yet reached Toronto. Root seeds, many of which come from England, will be very scarce.

### Practical Support

I enclose \$1.00 to cover my subscription for three years to the Canadian Horticulturist.

I think very highly of your papers and as I am President of a company owning the largest orchards in Nova Scotia, I have had the company send subscriptions for a number of their employees, all of whom find that your publication contains a great deal of useful information.

L. S. Macoun, Ottawa, Ont.

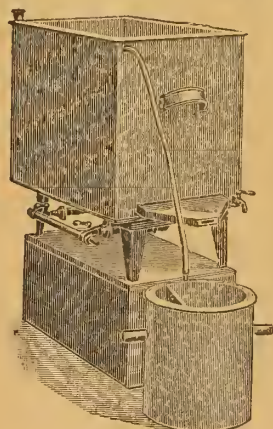
### PREPAREDNESS PAYS

Order now and avoid spring rush. Bee supplies, books, magazines, 1917 prices withdrawn. Write for prices until new catalogue is issued.

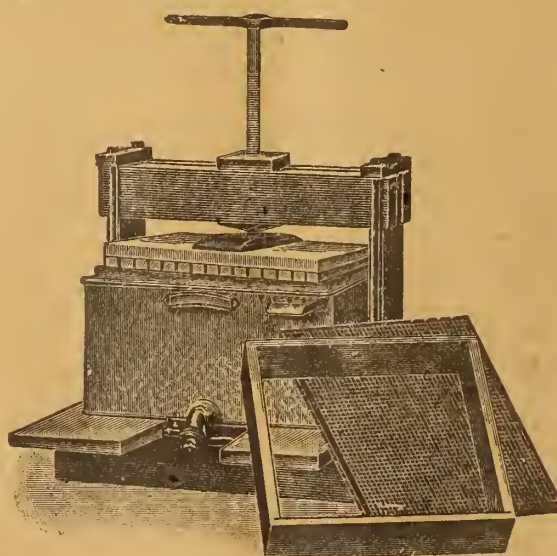
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The Armstrong Cappings Melter.



The Sibbald Wax Press.

Two machines that every up-to-date beekeeper should possess. Beeswax wanted for cash or in exchange, or we will make it into Comb Foundation by Weed Patent Process for you. Early cash order discounts and prompt service NOW.

**The Ham & Nott Company, Limited**  
Brantford Ont.

Despite the enormous oat crop of 1917, seed oats of good weight and quality are short in certain parts of the east, though plentiful further west. The supply of choice wheat, barley, oats and rye will be ample for our needs, though these are in many cases being held at fancy prices in sympathy with the grain market. In clovers and grasses the greatest deficiency is in red clover. This crop was below the average and since the opening of the season considerable exporting to England, France and Italy has been done to make up serious shortages there.

With regard to flower seeds, the situation is better, though it is the exception to find a variety of garden seeds which is anything like a normal supply. The supply of bulbs from Holland and the Continent has dwindled away to comparatively nothing.

It is hoped that the prevailing high prices of all seeds this year will have the effect of making people more saving and see that no seed is wasted.

### Root and Vegetable Seeds.

Seed Commissioner Geo. H. Clark, of Ottawa, writing to The Canadian Horticulturist, also points out that supplies of field roots and vegetable seeds are now practically cut off from Europe. However, with the exception of a few kinds, notably turnip seed, there may be sufficient to meet our 1918 requirements. Prices are abnormally high because in part the prospective supplies for 1919 are not visible.

Progress in growing these seed crops in Canada. Mr. Clark states, has been slow because they require a great deal of experienced hand labor. The growers have been assisted by a bonus from the Seed Branch amounting to nearly one-half of the normal wholesale prices, and supplied with information on the growing of each particular crop.



## Nova Scotia Fruit Growers' Convention

THE 54th annual meeting of the Nova Scotia Fruit Growers' Association was held at Kingsville, N.S., Jan. 15-17.

After the address of the president, Prof. W. Saxby Blair, in charge of the Experimental Fruit Farm at Kentville, came an interesting explanation by Prof. W. H. Brittain of experiments made in 1917 on insect pests. The Tuesday evening's programme closed with a moving picture exhibit of orchard spraying, traction engine work and other views.

Wednesday morning was devoted to official business, election of officers for 1918 and other things. The new president is F. H. Johnson.

In the afternoon Paul A. Murphy gave an explanation of experiments in dusting apple orchards, followed by Geo. E. Sanders on spraying. F. C. Whitman varied the program by an interesting talk on forest conservation with special reference to barrel stocks.

In the evening the fruit situation in 1918 was discussed by D. Johnson, Dominion Fruit Commissioner. This was followed by an address by Geo. E. MacIntosh on Transportation and the Food Situation in 1918. A bright and interesting appeal for poultry as an orchard adjunct was made by F. C. Elford with the wit of an Irishman and the ability of a Canadian. That he hailed from Ottawa showed the benefits of environment. In fact it was an "Ottawa" evening.

Thursday morning was devoted to a discussion of orchard experiments and results from spraying, led by Mr. P. Pyke and C.

Perry Foote; after which came a review of the Fertilizer Situation in its commercial aspects by A. E. McMahon, general manager of the United Fruit Companies of Nova Scotia.

Thursday afternoon was confined to the humble potato, the pomme de terre, the apple of the earth. R. D. L. Bligh, of Kentville Experimental Farm, Paul A. Murphy and Prof. W. H. Brittain, of Truro, gave excellent addresses. Few realized that the "spud" had either so many friends or so many enemies as was made evident. For at least one thing, some body remarked, we must thank Ireland, what would we do without the potato.

An important subject discussed was that of the apple barrel. We have had the standard American barrel, Nova Scotia barrel, and big Ontario barrel. The consensus of opinion, as expressed by a unanimous resolution was that Canada should have one standard apple barrel to conform to the size of the American barrel and so standardize for the whole continent. A motion in favor of grading potatoes carried with a few nays. The Massachusetts fruit packing act of 1915 was introduced and advocated in preference to our present Canadian Act; the special point being the elimination of "size" as affecting the grade; but marking on the package the minimum diameter of the contents. In all the meetings the members showed themselves cheerful to face the future and deeply interested in experiments and results for combatting the insect and fungus enemies of the orchard.—H. P. B.

## HELP WANTED

Will give experience and fair wage to active young man who is not afraid of work, for help in large, well-equipped apiaries for season starting in April.

State present occupation, also age, weight and why exempted.

**MORLEY PETTIT**

The Pettit Apiaries  
GEORGETOWN, ONTARIO, CANADA

## 25 TONS OF BEESWAX WANTED

To make into JONES-WEED Process Comb Foundation and for which we will pay the highest price either in cash or exchange. Write us stating how many pounds you have and we will quote prices. We will make up wax by our JONES-WEED Process also.

### POUND PACKAGES

We offer hardy, northern bred, Italian bees reared in our own bee yard, in pound packages or full colonies. Safe delivery and satisfaction guaranteed.

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Manufacturers of Bee-keepers' Supplies.  
Breeders of Italian Bees and Queens.

**BEDFORD - - - QUEBEC**

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SUPPOSING there is a bumper crop of Honey this year [conditions point that way] and you should run short of Containers in the middle of the flow, when there would be a great demand for pails and deliveries liable to be slow, would you not be greatly inconvenienced? We would respectfully point out that present conditions necessitate orders being placed in advance to ensure

## PROMPT SHIPMENT

and owing to present unsettled conditions prices cannot be guaranteed. All orders will be entered in the order in which they are received. We are doing our part by preparing our stock and reminding you early; will you not co-operate with us by placing order NOW?

Our ILLUSTRATED CIRCULAR and PRICE LIST is yours for the asking. A copy has been sent to every member of the Ontario Beekeepers' Association; if you did not receive yours, drop us a card.

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"Dr. Miller's Thousand Answers  
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For over 20 years Dr. Miller, greatest living authority on Bees, has been answering questions in the American Bee Journal. Over ten thousand he has answered in all, and for beginner and veteran bee-keeper alike.

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The book is sold postpaid for \$1.25 or in combination with a year's subscription to the American Bee Journal, the best bee paper, issued monthly. Combination price on the two is only \$1.90.

**American Bee Journal**  
Hamilton - - Illinois

## Niagara Peninsula Fruit Problems Discussed

**M**ATTERS of more than usual interest were discussed, and decisions thereon reached, at the annual business meeting of the Niagara Peninsula Fruit Growers' Association, held in St. Catharines, January 17th. The subjects dealt with included the probable effect of the proposed new Dominion legislation upon the wine and grape industry, the question of rates to be paid the National Service Girls, and their hours of labor, and the holding of district conventions.

The Dominion temperance legislation is likely to affect the grape industry seriously, as the native wine industry has consumed half of the grapes produced in the Niagara District. Were the grapes that have been used in this industry to be forced on the market it would be likely to create a glut that would react disastrously on the marketing of other fruits. After a full discussion it was decided, on motion of W. H. Bunting and David Allan, to send the following telegram to Sir Robert Borden: "We respectfully request the Dominion Government, in any proposed temperance legislation, to take into consideration the large amount of capital invested in the grape industry in this Province, and protect the same as far as possible in harmony with the plans of the Government for the conserving

of all the energies of this Dominion at this strenuous time." Later a deputation waited on the Government in Ottawa, and received assurances of further consideration when the question of manufacture of liquor is further dealt with.

## National Service Girls.

A discussion was held on the proposals that were laid before the fruit growers in December on behalf of the National Service Girls by Dr. Riddell and a committee representing the Y.W.C.A. matrons and the girls themselves. While many of the girls last year had offered their services on patriotic grounds, their belief now is that this year the work should be conducted on a business basis. They suggested a nine hour day, a Saturday afternoon half-holiday, and four proposals as to basis of payment. These proposals were as follows:

1. 25c an hour without board.
2. 15c an hour with board.
3. A flat rate of \$9 a week.
4. As to piece work, a guaranteed minimum of \$1.25 a day and rates as follows: Strawberries, 2c to 5c a box; raspberries, 3c to 5c; black and red currants, 50c per 11-quart basket; cherries, 25c a 11-quart basket with a ladder, or 20c without ladder, 15c for 6-quart basket.

A contract form was presented for engaging fruit pickers, the growers to drive for girls or pay car fare, or allow time for walking to work.

After a full discussion a committee, composed of Messrs. W. H. Bunting, H. Smith, T. H. P. Carpenter and E. H. Palmer was appointed to deal with the matter. This committee later reported as follows:

1. Resolved that with reference to Section 1 of the Service Girls' proposition, owing to climatic conditions which are uncontrollable, no hard and fast rule can be entered into as to a Saturday afternoon half-holiday, or as to the number of hours constituting a day's work.

2. That in order no mistake may arise as to the actual meaning of the aforesaid clause, we hereby propose to the National Service Girls that all employers of this class of labor guarantee a minimum sum of \$5 a week to each worker during the time for which she is engaged, excluding time lost through indisposition. This sum to cover board and incidental expenses, and also add the sum of 15c an hour for all hours actually employed in excess of number required to protect the above guarantee.

3. Resolved that with regard to the clause referring to piece work that the following schedule of prices apply: Strawberries, 2c a box; raspberries, 3c; blackberries, 2c; gooseberries, 20c an 11-quart basket; cherries, 20c for 15 pounds, irrespective of the use of a ladder; black currants, 2c a pound.

The report was adopted and a committee, composed of Messrs. Bunting, Carpenter, Palmer, C. E. Fisher and S. Rittenhouse, was appointed to conduct further negotiations with representatives of the girls at a meeting to be held in Toronto. During the discussion it was shown that the fruit growers thought that the request of the girls for payment at the rate of 25c an hour was unreasonable, as men, much more capable, could be engaged at \$2.50 to \$3 a day. Several of the larger growers also expressed their disapproval of the proposed agreement forms that had been submitted on behalf of the girls.

The Publicity Committee, which has done

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## J. E. Marchant Bee and Honey Co.

## Southern Headquarters for Bees and Queens of Quality

We take pleasure in quoting you our prices on Bees and Queens for the season of 1918, as follows:—

Size	1 Pkg	6 Pkgs.	12 Pkgs.	25 Pkgs.
1 lb. Bees .....	\$1.75	\$ 9.60	\$18.00	\$ 35.00
2 lb. Bees .....	3.00	16.50	31.80	63.75
3 lb. Bees .....	4.00	22.50	43.80	88.75
5 lb. Bees .....	5.50	30.00	58.80	115.00

These prices do not include queens, if queens wanted add her price as per quotations below:

Size	1 Nuclei	6 Nuclei	12 Nuclei
1 Frame Nuclei .....	\$3.00	\$17.40	\$33.00
2 " " .....	4.25	24.90	48.00
3 " " .....	5.00	29.40	57.00
5 " " .....	6.50	38.40	75.00

At the above prices on nuclei we furnish untested queens for same.

	1 Queen	6 Queens	12 Queens	25 Queens
Untested Queens .....	\$1.50	\$ 8.00	\$15.00	\$25.00
Tested Queens .....	2.00	10.50	18.00	31.00
Select Tested Queens ..	3.00	15.00	25.00	43.00
Tested Breeding Queens, \$5.00; Extra Select Tested Breeders, \$10.00				

Prices on bees and queens in large quantities will be gladly furnished. we also have a low price on queens after July 1st—Get our prices.

The price of material in making up packages for bees have advanced above last season. Therefore, we have had to advance our prices on both bees and queens.

We are better equipped than ever before to serve the trade. Our express service and mail service can not be any better.

We guarantee safe arrival on all bees and queens in the United States and Canada. OUR BEES are free from any bee disease. We thank you for your business.

**J. E. Marchant Bee and Honey Company**  
COLUMBUS, GA., U.S.A.

QUALITY

SERVICE

SYSTEM



good work during the past year, was re-elected and asked to present a report as soon as practicable. A committee was appointed to confer with local directors in regard to holding local meetings. A resolution was passed favoring the granting of five months' holidays to high school boys to work on fruit farms.

#### Officers Elected.

The following officers were elected: President, S. H. Rittenhouse; 1st Vice-President, David Allan; 2nd Vice-President, F. G. Stewart; 3rd Vice-President, J. P. Bridgeman; 4th Vice-President, F. A. H. Sheppard; Secretary-Treasurer, C. E. Fisher; Honorary Directors, E. J. Palmer, David Elliott, J. D. Chaplin and Dr. Jessop.

Directors: Niagara Township—A. Onslow, C. H. Fisher, T. B. Revett, Hudson Usher, J. A. Culvert, L. H. Collard.

Grantham—W. H. Bunting, Geo. A. Robertson, W. S. Thompson, C. E. Secord, W. H. Secord, G. B. McCalla, W. E. Bush, & McDermid.

Louth—J. W. Broderick, Wm. Scull, A. J. Mills, C. M. Honsberger, Ezra Honsberger, A. Craise, A. C. Gregory, Chas. Clause.

Saltfleet—Senator E. D. Smith, R. H. Dewar, F. Carpenter, H. Smith, J. R. Hastings, J. E. Henry, E. M. Smith, A. E. Walker, T. J. Mahoney, T. H. P. Carpenter.

Pelham—G. C. Brown, Ed. Clemens, C. B. Elliott, B. A. Patterson.

Stamford—C. E. Munroe, H. McCleod, G. E. Russell, Frank Gallenger.

Clinton—A. Smith, A. D. Harkness, E. L. Jemmet, S. M. Culp, H. Rittenhouse, Jas. Stevens, J. B. Fairbairn.

North Grimsby—Jas. Marlow, H. Fleming, T. N. Wolverton, Mayor Roberts, W. W. Beamer, J. H. Alway, C. W. F. Carpenter,

Wm. Hunter, H. Metcalf, Jas. Taylor.

Thorold—A. Nelson, John Banon, E. Ashbury.

#### President's Address.

In his annual address President Fleming referred to the light crops last season, except in Niagara township, where peaches had yielded well. Credit was given to Messrs. Curry and Gabel, Dominion Fruit Inspectors, for good work accomplished, as well as to the pre-cooling plant at Grimsby. Mr. F. C. Hart, of the Markets Division of the Ontario Department of Agriculture, had also rendered valuable service to the fruit growers during the year.

#### Financial Statement.

The financial statement showed receipts of \$790.54 and expenses of \$854.70, leaving a balance on hand of \$305.84. In order that the receipts of the association might be increased as well as the paid-up membership, it was decided, on motion of F. G. Stewart and Jas. Culvert, that hereafter fruit growers attending meetings of the association must be fully paid-up members who had received the official button.

#### A Lower Rate on Fertilizers

The Food Control Department has taken steps recently to promote the production of such products as fruits, potatoes and vegetables. Their cultivation should be extended, not restricted, says the Food Controller. Therefore their continued increased production and distribution are vital, in view of national and international necessities. Since we must save for exportation wheat, meat, fats and sugar, we should utilize more than before the bulkier, more perishable products, and to carry this into effect there



### Fancy Fruit

grows only in well-tilled orchards. Intensive orchard tillage pays. Work in close to the trees with an

#### "Acme" Orchard Harrow

Cuts, crushes, mulches, levels, and compacts the soil—all in one operation. Keeps the orchard clean as a new pin. Extension and regular styles—a size to suit you. Our new free book, *The "Acme" Way to Crops That Pay*, is ready. Send today for your copy.

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No 23 61-2 ft. Wide



For 1918  
We offer a select list  
of  
Standard and Everbearing Varieties  
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**STRAWBERRY PLANTS**  
Get our list before ordering.  
**ONTARIO NURSERY CO.**  
WELLINGTON ONTARIO.

## HONEY CANS

We are prepared to quote on  
full line of Honey Containers.

When writing for prices  
state quantity required of each  
size.

**American Can Co.**  
HAMILTON, ONT.



## REINDEER FLOUR

Is being milled in accordance  
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### New Flour Regulations

of the Food Controller, which require that only one grade of flour, shall be milled from each class of wheat.

Our Reindeer Flour from now on will be a clear, white flour, suitable for all practical purposes.

The high efficiency of our mill and the long and complete experience of our millers, assure our customers the very highest quality of flour that the wheat will produce.

In fact we guarantee it equal, if not better, than any bread flour made in the Dominion of Canada under the new regulations.

Bread baked from it will be found extremely palatable and nutritious.

Supplied by your Grocer.

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Peterboro'  
LIMITED  
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**ORCHID GROWERS**  
 The Finest Stock in the World  
*Catalogue on Application*  
**ST. ALBANS - ENGLAND**

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direct from our Nurseries and save agents' and dealers' profits. Write at once for Catalogue and price list of fruit and ornamental trees, small fruits, shrubs, evergreens, roses, etc. A post card will bring it. Address

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 FONTHILL : : ONTARIO

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Perfect hearing is now being restored in every condition of deafness or defective hearing from causes such as Catarrhal Deafness, Relaxed or Sunken Drums, Thickened Drums, Roaring and Hissing Sounds, Perforated, Wholly or Partially Destroyed Drums, Discharge from Ears, etc.

**Wilson Common-Sense Ear Drums**

"Little Wireless Phones for the Ears" require no medicine but effectively replace what is lacking or defective in the natural ear drums. They are simple devices, which the wearer easily fits into the ears where they are invisible. Soft, safe and comfortable. Write today for our 168 page FREE book on DEAFNESS, giving you full particulars and testimonials.

**WILSON EAR DRUM CO., Incorporated**  
 437 Inter-Southern Bldg. LOUISVILLE, KY.

must be a greater acreage devoted especially to vegetables.

Fertilizer in some districts has been hard to get. Fruit and vegetable districts adjacent to Toronto have been able to secure manure at a very low freight rate, and therefore are not compelled to use great quantities of commercial fertilizer, the price of which has increased.

Through the efforts of the Transportation Department of the Fruit Branch, Ottawa, Essex district is to share in this advantage, the Grand Trunk Railway having consented to a rate of 7 cts. a 100 lbs. from Toronto via Chatham and Pere Marquette, to points on the latter's line, effective January 14th, and efforts are also being made for the same rate with C.P.R. and W. E. & L. S. routing.

This is a reduction of 6 cts. a 100 lbs. in the freight rate to points mentioned. Manure from Toronto can now be laid down at Leamington, Kingsville and other points for \$2.65 a ton, including the freight charges.

Representations have been made to the Food Controller and to the Fruit Branch that large quantities of manure were required in this district. The establishing of the new rate will be appreciated by the growers.

The Canadian Horticulturist has material in it which interests me and I am sure it would interest others who, like me, are fascinated with the growth of flowers. Accordingly I enclose \$1.25 for five subscriptions for friends who are interested in flowers, for one year. Please forward to David Logan, John Munro, William Emery, Lawrence McCutcheon and myself, all addressed to Pictou, N.S.—H. H. Hamilton.

**The Leno Basket Favored**

Editor, The Canadian Horticulturist.—It is reported that an effort is being made by some fruit growers and shippers of fruit on the main line of the G.T.R. between Jordan and Winona, Ont., to discourage and prevent if possible, by legislation, the use of leno as a covering for fruit baskets.

The fruit growers, especially in the townships of Niagara and Stamford, have established a special trade for this leno covered heaped fruit package. It is a neat, attractive basket of fruit; it is graded fruit; it is guaranteed; a good seller, and part of the trade will have no other.

The Canadian Steamship lines encourage this class of freight by furnishing hundreds of shelved trucks. Each of these trucks carry eighty leno covered 11-qt. heaped baskets, either of fruit or vegetables, and charge six cents a basket, or \$4.80 a truck load between the Niagara River points and Toronto.

The M. C. Railway line, running through the townships of Niagara and Stamford, capture a considerable portion of this special line of business and during the months of August and September in each year furnish the fruit growers with sufficient cars on their numerous sidings.

The Niagara Fruit Co., at St. David and Queenston, provide special shelved cars for this special line of business. This company shelve these cars at their own expense.

The Niagara Fruit Co. at Queenston and St. Davids, Ont., provide special shelved cars for this special line of freight. The company shelve the cars at their own expense.

The Cold Storage Co., of St. Catharines, shelve more or less of their cars in order to satisfy customers who desire space for this

**NO EXPERIMENTING**

**The New Insecticide**

**Less than Half the Price of Paris Green or Arsenite of Lead and Equally Effective and Reliable**

Comes in four sizes, small and large packages, and in 5, 10 and 25 lb. Bags  
 Any Size for Special Orders

Kills POTATO BUGS, BUD MOTH and CANKER WORM on fruit trees. Destroys codling tus. ock moth and chewing and leaf-eating insects.

**ACCO SPRAY (Arsenite of Lime)**

**The King of Bug Killers**

IT is vitally important that you use ACCO SPRAY ARSENITE OF LIME to stop the wastage of good crops coming this year. Millions of dollars worth of crops are destroyed annually by bugs! Use ACCO SPRAY ARSENITE OF LIME and stop this waste! It is always good practice to stop any kind of waste. In the year of 1918, not one grain of seed that can be used should be wasted if we are to feed our troops at the front, feed ourselves and have sufficient surplus to help feed our allies. ACCO SPRAY ARSENITE OF LIME is the most effective protection against bugs on the Canadian Market.

Manufactured solely by

**ACCO CHEMICAL CO.**

TORONTO - CANADA

**Look to Your Supply of Acco Spray Arsenite of Lime**

The scarcity of Paris green and other insecticides is likely to continue next year according to Dr. Hewitt, Dominion Entomologist, who advised growers to lay in a supply of spraying materials early and thus make sure of having them on hand at the proper time. The Department at Ottawa is trying to induce manufacturers to keep up the supply. To help in proper distribution it is proposed to make use of local organizations such as farmers' clubs, who can make purchases of standard insecticides. Crop protection means crop production, and the ammunition must be brought up behind the front line trenches," was his advice.

**HAROLD F. RITCHIE & CO., Limited**

Sales Agents for all Canada

10-12-14 McCaul Street

TORONTO, CANADA



special guaranteed, heaped, leno covered basket of fruit or vegetables.

The Western New York fruit growers use no other covering for their fruit packages.

In the near future the New Hydro Electric development at Queenston will be in operation, furnishing power to radial roads from all points in the Niagara District to other points in the province and carry their daily evening freight supply of fruit and vegetables.

When this is established those fruit growers and fruit shippers on the main line of the G.T.R. who are now barred from shipping this special heaped package, because the Express people refuse to accept or provide shelving to accommodate it will then be free to ship this heaped package if they so desire.—Wm. Armstrong, Niagara-on-Lake, Ont.

## Shorter Hours in the Orchard

At a recent meeting of fruit-picking girl students in the Physics Building of the University of Toronto, a number of resolutions regarding the work of the coming year were passed. These were drawn up by a committee composed of representatives from the various camps in Ontario. The following is a summary of the resolutions passed:—

1. That, except in case of necessity, the limit of the working day be nine hours, with Saturday a half-holiday.

2. That for rates the farmer be presented with these alternatives: (a) That he pay weekly board and pay for work done at the rate of fifteen cents per hour; (b) if board be not guaranteed, that the rate of pay be twenty-five cents an hour; (c) that if piece-work be the best method, a guarantee of a minimum (not average) rate of \$1.25 per day should be given and a scale of prices observed, as follows: Strawberries, ranging from two cents to five cents a box; raspberries, three to five cents a box; cherries, 25 cents per 11-quart basket when ladder is used, 20 cents per 11-quart basket without ladder, 15 cents per six-quart basket; black currants and red currants, 50 cents per basket of 11 quarts. All other fruit, maybe excepting grapes, shall be paid for at a flat rate on scales mentioned in a and b; (d) that a weekly wage of \$9 be paid.

\$1.40 Too Much.

A proposal that clause c read \$1.40 was turned down, as most of the girls agreed that some pickers were not worth that amount, and it would not be fair to the farmer.

A third resolution, which was carried, provided:

(a) That the central community system be adopted for housing where possible, unless more satisfactory arrangements could be made for convenience of both workers and farmers; (b) That the organizations in charge of the housing devise schemes whereby the workers would be relieved from housework after hours, also for sanitary necessities, such as bathing accommodation, tent flooring, etc.

### A Secretary for Each District.

That an efficient Secretary be appointed for each district to act as arbitrator between farmer and fruit-picker formed clause (a) of a fourth resolution.

If any planting is contemplated in the orchard this year it might be wise to write to the Department of Agriculture for bulletin, "Varieties Recommended for Ontario."

# EWING'S SEEDS



will grow this year, just as they have grown for the past 45 years.

Ewing's Seeds bring success to the amateur gardener, and excellent profits to those who make their livings from their crops.

Write for our illustrated Catalogue—and if your dealer hasn't Ewing's Seeds, order from us direct.

THE WILLIAM EWING CO. Limited  
Seed Merchants  
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## Fresh Strawberries all Season

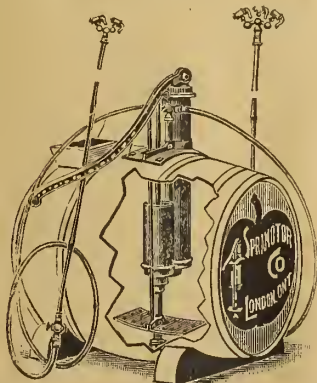
Send card to-day for McConnell's Free Plant catalogue. Tells you about the great Everbearing Strawberries and Raspberries; also standard varieties of Strawberries, Raspberries, Currants, Gooseberries, Grapes, Asparagus, Seed Potatoes, Fruit Trees, Shrubs, Ornamentals, Roses, Etc.

H. L. McCONNELL & SON

Port Burwell, Ontario

## The Most Modern Weapon For Protecting Your Field and Orchard Crops

from being destroyed (or their market value lessened) is the SPRAMOTOR. It will enable you to combat the potato beetle and blight quickly and effectively—in the orchard—to produce 75 per cent. No. 1 fruit and have cleaner, healthier trees—free from scale and bark-louse.



**Spramotor**  
It isn't a SPRAMOTOR unless we made it

We make a complete line of sprayers—one for every need, from the small hand outfit to the large 250-gallon gasoline power sprayers. They are all Spraymotors, and range in price from \$7 to \$400. Write us your requirements or at least send for our catalogue and Free Booklet on Crop Diseases. Get your copy to-day.

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NO DUTY TO PAY.

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4002 King St. - London, Can.





## A Wealth Producing Apple Orchard



### The Investment Opportunity of the Hour

The old Orchards of Ontario and Eastern Canada are practically done. Very few new Orchards are coming on to take their places. The war has destroyed the finest Orchards of Continental Europe.

Canadian Farmers and Fruit Growers should plan for after war conditions when Canada's reputation for producing the best, will make the Canadian Apple in big demand. Dominion Fruit Commissioner Johnston says "Plant Now."

Apple trees are growing scarce and will be for years to come. Present prices will only hold good until Spring. Afterwards there will be a general advance. **IF YOU WANT TO BUY RIGHT, BUY NOW.**

Send for Catalogue and Free Orchard Information.

**Stone & Wellington**

THE FONTHILL NURSERIES  
TORONTO - ONTARIO



## NORTHERN ONTARIO

A vast new land of promise and freedom now open for settlement at 50c an acre in some districts—in others, Free.

Thousands of farmers are responding to the call. Here, right at the door of Southern Ontario, a home awaits you.

For information as to terms, regulations and railway rates to settlers, write to

**H. A. MACDONELL,**  
Director of Colonization.  
Parliament Bldgs., TORONTO,  
CANADA.

**HON. G. HOWARD FERGUSON,**  
Minister of Lands, Forests and Mines.

# POULTRY YARD

## Hens Need Fresh Air

Pure air is as necessary for fowls as clean water and good feed. When hens are confined to badly ventilated houses in winter they lose vitality, produce fewer eggs, and often become sick and stop laying.

Good ventilation is needed also to keep the house dry. When the circulation of the air in a poultry house is poor in cold weather, moisture collects on the inside of walls and roof. At a freezing temperature, under such conditions, there is a rapid accumulation of "frost" on these surfaces, which makes the house very uncomfortable. When the temperature rises above freezing again, this frost melts and runs down the walls and trickles from the roof. First the air in the building becomes saturated with moisture, then the litter on the floor.

If the house is not overcrowded and is insufficiently ventilated for only a day in cold weather, no great harm is done. In an overcrowded house conditions become insanitary in a few hours. Even in a house properly stocked conditions at the end of one day of impure air are noticeably bad, and, unless promptly corrected, grow steadily worse.

### Regulating Ventilation.

Ventilation to provide pure air and dryness in a poultry house is simply a matter of keeping doors and windows open as much as is necessary to keep the walls dry. Few poultry keepers have any difficulty in this until the temperature goes low enough to freeze water in the house. Then the tendency is to close doors and windows to keep the house warm.

This is the right idea, subject to the practical limitation that the house must not be closed so tight that the supply of fresh air is insufficient and the circulation of air is retarded to such an extent that moisture collects on the walls. The proper regulation of ventilation insures pure air and dryness and keeps the house as warm as is practicable without the use of artificial heat or special provision to absorb an excess of moisture. The adjustment of doors and windows to provide the conditions required must be learned by observation.

### Ventilating Through Cloth.

Cheap cotton cloth and common burlap are often used in some of the windows of a poultry house in place of glass. Cotton cloth is to be preferred for this purpose because it is cleaner and admits more light. When both cloth and glass windows are used the most common practice in cold weather is to keep the glass windows closed all the time; to open the cloth window wide on clear days and close it as much as seems necessary at night and on stormy days.

### Reducing Moisture.

Usually a house can be run with a good deal of ventilation in all but the very coldest weather. Birds can stand quite low temperature provided their combs do not get frosted. Where there is much hard freezing weather the most effective way that has been found to keep a poultry house warm and dry is to place dry straw or hay, to the depth of a foot or more, overhead on

a floor or boards laid as wide apart as may be and still hold the straw.

Dry straw will usually absorb all moisture, and so, when it is used, the poultry keeper must judge by the air in the house how much to keep doors and windows open. A breed that will not stand the temperature when ventilation is regulated in this way is not suited to the climate.

### Male Birds Need Special Care.

The hens of all breeds, having smaller combs than the males, can stand much lower temperatures. As the proportion of females to males kept is usually about ten to one it is not economical, under extreme weather conditions, to regulate the house to suit the males. When the house as operated for the hens is too cold for the males, the usual practice is either to put the males temporarily in a warmer place, or to put them at night in small coops in the same house. As a rule, the occasion to do this arises only a few times in a winter.

## Water Supply for Poultry

A supply of pure drinking water frequently renewed is as necessary for poultry as sufficient supplies of food. There are two different types of drinking vessels in common use: Open vessels—pails, pans, crocks, and the like; and drinking fountains so constructed that dust and dirt can not get into the water except by way of a very small exposed surface.

These opposite types of drinking vessel are about equally popular with poultry keepers. Open vessels catch more dirt and dust, but are more easily cleaned. Closed fountains may be used much longer without cleaning, but if allowed to become foul are harder to clean thoroughly.

Placing open drinking vessels on a shelf a foot or more above the floor prevents the hens from scratching coarse litter into them, but does not keep out fine dust which floats in the air and settles in the water.

Thoroughly rinsing open vessels once a day and scalding drinking fountains once or twice a week will usually keep them as clean as necessary.

## Laying Hens Need Grit

Ground feeds are necessary for most efficient digestion in poultry. Hopper feeding saves labor and furnishes the necessary supplementary feed at all times. There is no danger of poultry over-eating on ground feeds fed dry in a hopper.

Limestone grit or oyster shell is also necessary for laying hens. A laying hen requires large quantities of shell-making material. Nearly all of this must come from the grit and shell she eats. It is poor economy not to keep a liberal supply accessible. One extra egg a year will pay the bill. It returns the money invested a hundred-fold.

Chickens like a dust bath. Dust is hard on lice, as fine dust gets into their breathing pores and suffocates them. Road dust gathered in the summer and stored for winter is fine. Keep a box of dust in the poultry house.





*Delicious Strawberries  
from June to November*

*Picked and Photographed  
October 13, 1917*

# KELLOGG'S EVERBEARING STRAWBERRIES

**Give Bigger and Quicker Profits Than Anything Else That Grows**

**K**ELLOGG'S EVERBEARERS set this spring will produce loads of big, delicious berries this year all through August, September and October, and next year they will fruit heavily from June to November. Frost does not affect their blossoms or fruit. Fall strawberries always are in great demand at prices ranging from 30c to 50c per quart.

We want to send you our handsome new 64-page book "GREAT CROPS OF STRAWBERRIES AND HOW TO GROW THEM." This big book has been written by a man who has made strawberries his life study. It tells how KELLOGG PLANTS grown the "KELLOGG WAY" will make more money for you per acre than anything else you can grow. It also gives the experience of many growers who make at the rate of



**W. L. FORBES**

"I have grown Kellogg Strawberries exclusively for the past 15 years and seldom make less than \$1200 per acre. Last year I made \$1500 per acre from Kellogg Everbearers. Kellogg's strawberry book has been worth its weight in gold to me."  
W. L. Forbes, Vermont

**\$1000 per Acre the Same Season Plants are Set**

*Read What These Growers Say*

W. R. Randall of Illinois made at the rate of \$1900 per acre. R. A. Cable of Colorado made at the rate of \$840 per acre. O. J. Orsborne of Utah made \$33.70 from only 50 Kellogg Everbearers besides supplying his family with berries. Elijah Straight of New Brunswick, Canada, picked an average of three quarts per plant.

We could fill this entire page with similar reports. You can make these same big and quick profits. We will help you. Our big, free book pictures and describes these wonderful Everbearers and tells how to grow them. It also pictures and describes Kellogg Strawberry Gardens.



**MRS. DORA SNOW**

"From my small Kellogg Strawberry Garden I sold \$130.00 worth of berries besides all I could use at home. Many of the plants produced two quarts of berries each. I sold my Everbearing Strawberries at 30 cents per quart. Some of the berries were almost as large as peaches."

Mrs. Dora Snow,  
Nebraska

## Kellogg Strawberry Gardens

Stop paying high prices for common strawberries. Let a Kellogg Strawberry Garden supply your entire family with big, sweet, delicious berries the year 'round without cost and give you a big cash profit besides. Grow them right in your own garden or back yard and reduce the high cost of living. You simply can't afford to be without a Kellogg Strawberry Garden this year. Write for our big, free book today. It tells how you can pick berries fresh from the vines from June to November and gives 30 recipes for preparing strawberry dainties for both summer and winter.



*A Kellogg Strawberry Garden*

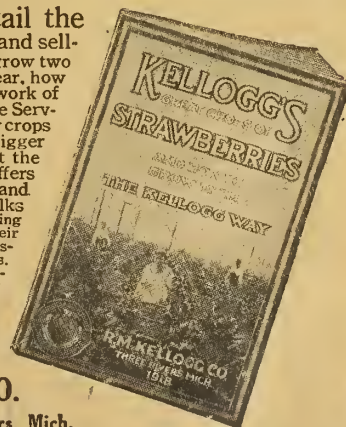
## Send Today For Our Big, New Strawberry Book—It's Free

It explains in detail the *Kellogg Way* of growing and selling strawberries, how to grow two big crops of berries each year, how to make one acre do the work of two, and how Kellogg's Free Service will help you grow bigger crops of better berries and make bigger profits. In fact, it gives just the information needed. It also offers big cash prizes to the boys and girls and tells the women folks how to earn their own spending money and how to save on their grocery bills. Beautifully illustrated with actual photographs. 64 pages of plain practical strawberry information and money making facts. Worth its weight in gold—costs you nothing. Your name and address on a postal will bring this book by return mail. Write for it today.

**R. M. KELLOGG CO.**

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KELWAY'S Wholesale REAL PRICE SEED Catalogue for 1918 has been posted to all customers. If you have not received a copy, please send a card and one will be sent you by return of post.

**KELWAY & SON**

Wholesale Seed Growers.

LANGPORT. SOMERSET. ENGLAND.

## The Fruit & Produce Market

The Commission firms undertook with consignments of fruit and general produce. They will be pleased to have you write them for information, shipping stamps, etc., if you have fruit or vegetables for sale.

## STRONACH & SONS

33 Church St., Toronto, Ont.

Wholesale Fruit, Produce and Commission Merchants.

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We give personal, consistent and reliable attention to every consignment. Shipping stamps furnished on request.

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Wholesale Fruit and Produce. Consignments Solicited.

## HERBERT PETERS

88 Front St. E., Toronto, Ont.

Wholesale Fruit and Produce

See advertisement on page 18.

# Government Control of Vegetable Seeds

THE following statement bearing on the seed situation in Ontario was furnished The Canadian Horticulturist by Mr. J. Lockie Wilson, Secretary of the Ontario Vegetable Growers' Association. It is, we understand, a matter to which it is desired public attention shall be given:

The scarcity of certain important vegetable seeds which are used by our vegetable growers in the Province, as well as elsewhere, has aroused the attention of certain members on behalf of the Government to look carefully into this matter. Upon the suggestion of various organizations the Government appointed a specialist to stimulate the home growing of vegetable seeds which up to the present time had been grown in other countries owing to cheapness of labor and suitable conditions of climate and soil in which to grow to maturity these valuable vegetable seeds. By means of cooperation on the part of the various Government officials interested in this branch of the work at Ottawa, Toronto and elsewhere, as well as the growers throughout Ontario who were also wide awake to the situation, the outlook in Ontario began to appear more hopeful. Much work has been done to date in making this a real live issue for Ontario, so much so that the amount of seed produced, as well as the value of new strains of vegetables secured as a result of selection, that little remains undone except the acclimatizing of these new seeds in climates where they can be easily grown on a commercial scale and finally the work of putting them on the market in Ontario for the use of Ontario growers where they can reap the benefit of such intensive methods of production.

It would be unfair to ask the vegetable growers to assume the responsibility of growing their own seed, since very few could indulge in the work to such an extent as to make it profitable. The outlook for such an industry is uncertain for the production

of certain seed. In other cases it should prove profitable.

In the first year of the war, when the shortage of seed was becoming acute, a strong plea was made to the people, especially in cities and towns, to increase production of food material. The result was very gratifying in that numerous backyard garden campaigns were started and vast quantities of vegetables produced with very little effort on the part of the people. The effect was simultaneous all over and much enthusiasm aroused as to the possibilities of increasing the country's food supply by these means. The work progressed with redoubled efforts each succeeding year, in some cases successfully, while in other cases the weather conditions destroyed the whole outlay. Conditions, however, seem to have brought things to a crisis and unless some active measures are taken by the authorities to offset the trouble a very serious situation will result. The work of growing vegetables during the coming season has been planned by many gardeners and enthusiasts and splendid results should be secured, provided every factor is made secure. However, upon enquiry at the seedsmen's stores the amazing fact is brought to light that seeds of ordinary vegetables have doubled in price, while those of imported seeds have either gone beyond the pockets of many or else they are not procurable at any cost.

### Prices of Vegetable Seeds.

The following list of vegetable seeds with their prices for this year has been received from the Rennie Seeds Co., Ltd., Toronto. The prices, we understand, represent also those asked by other seed firms:

Vegetable—Variety	Amt.	'17.	'18.	Increase
Cress, Upland	1 oz.	.25	...	...
Radish, Early Scarlet	1 oz.	.10	.20	.10
Turnip	1 oz.	.20	...	...
Lettuce, Black Seeded Simpson	1 oz.	.25	...	...
Cabbage, Early Jersey Wakefield	1/4 oz.	.25	...	...
Onion, Prizetaker	1 oz.	.20	.45	.15
Celery, Paris Golden	1/2 oz.	.40	1.10	.70
Peas, Gradus	1 lb.	.25	.45	.20
Carrots, Chantenay	1/2 oz.	.20	.40	.20
Tomatoes, Bonny Best	1 oz.	.30	.60	.30
Cucumbers, White	2 oz.	.25	.40	.15
Spine	1/2 lb.	.25	.33	.08
Beans, Golden Wax	1 lb.	.30	1.25	.95
Mustard, White	1 lb.	.15	.05	.10
Buckwheat, Japanese	1 lb.	.15	.10	.05
Rye, Spring	1 lb.	.15	.05	.10
Oats	1 lb.	.15	.32	.17
Peppers, Chinese Giant	1/4 oz.	.15	.32	.17
Muskmelon, Paul Rose	1 oz.	.20	...	...

In the meantime bright, alluring articles are being written in our newspapers, as is the practice every year, describing the wonderful possibilities of success from growing vegetables in small patches of ground. The trouble which has evolved during the last three years has been that numerous people in cities and towns have joined hands and formed backyard garden societies. These in turn have been able to buy collectively in large amounts and resell the seeds at practically cost price to the members. Many of the best varieties are bought up wholesale and planted out on poor land, with the result that poor yields are obtained and the value of using good seeds of the best varieties is lost.

On the other hand the increased demand for good strains of seed by the backyard gardener has resulted in the depletion of the stock and higher prices. This affected directly the market gardener and commercial grower very seriously, since he is unable to buy seeds cooperatively to any ex-

# Business as Usual

## THE ST. CATHARINES COLD STG. & FDG. CO. LIMITED

*The Old Reliable Headquarters for Spray Materials, Pumps and All Fruit Growers' Supplies*

Our supply of Sulphur has arrived, can ship orders same day as received. We sell "Grasselli" Brand Lime-Sulphur Solution and Arsenate of Lead, "Niagara" Soluble Lime-Sulphur, Bluestone, Black Leaf 40, Fertilizers, Baskets, Crates and Berry Boxes, "Friend" and "Gould's" Power Sprayers and the labor-saving "Friend" Spray Gun.

*Order NOW From the Firm that Always Has the Goods On Tap*

**St. Catharines Cold Stg. & Fdg. Co., Ltd.**  
St. Catharines - Ontario



**Feed Your Fowl**  
**STEVEN'S**  
**GREEN GROUND BONE**  
 GEO. STEVENS  
 364 MARK ST. PETERBORO, ONT.

**PANSY**  
**"Canadian Beauties"**

If you wish to enjoy Pansies of great Perfection in form, coloring and size, we offer you, under the above title a choice product. Every flower is a queen; every plant a picture to behold. It is a blending of every imaginable color and combination of color. Per packet ..... 50c

Delphinium—"Majestic Giants"  
 from a choice collection of named varieties. Packet ..... 25c

WM. McSKIMMING, Pansy Specialist  
 230 ELIZABETH ST., GUELPH, ONT.

**Standard Apple Trees**

Have advanced in price 100% during the past year, but we are selling our surplus at the same price as usual. This is the chance of a life-time, as after the fall shipments we will advance our prices at least 50%.

**THE ALBERT NURSERIES**  
 Albert - - - New Brunswick

tent, and as he uses such a large quantity of these high priced seeds, he is rather up against it. It is necessary for him to have the best seeds procurable since quality in vegetables along with large production results when vegetables are grown under proper soil and moisture conditions.

The following suggestions are outlined here in hopes of rectifying the present condition in the seed business and also with the idea in view of standardizing the most valuable seeds used and reserving them for use by the commercial growers only:

1. That a statement on the situation in the seed business be prepared and submitted to the Food Controller as a basis for him to work.

2. That a signed petition by the vegetable growers of Ontario be presented to the Food Controller requesting him to take immediate action along at least one of the following lines:

3. First, that the Food Controller as representative of the Dominion Government be requested to take complete charge of the selling and distributing end of the vegetable seed industry, which is at present in the hands of the Canadian Seed Growers, comprising a number of large seed firms.

4. Second, that the Food Controller enact suitable regulations whereby the supply of vegetable seeds grown by Canadian firms in Canada be controlled, so that the most valuable standard vegetable seeds on hand now be sold only to bona fide gardeners (commercial growers who make their living by raising vegetables) and in such quantity as to allow all commercial growers a proper supply.

5. Third, that the Food Controller prohibit the use of the standard valuable vegetable by any person who is not a commercial grower, such as backyard gardeners

**Trees, Shrubs, Vines**  
 and  
**Herbaceous Perennials**

By JOHN KIRKEGAARD



**A Magnificent Volume on Horticulture and Arboriculture**

Of the many garden books few are more useful than

"Trees, Shrubs, Vines and Herbaceous Perennials."

It contains just such information as one requires in making the best selection of varieties and to care properly for trees and other plants.

Over 400 pages, 2096 descriptive classifications, 59 full page illustrations. Helpful lists and planting plans.

**Price \$1.50 Postpaid**

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**The Canadian Horticulturist**  
 Peterboro - - - Ontario

# SPRAYING ALONE WILL NOT PREVENT INSECTS

You must use the proper material at the proper time for spraying, as otherwise you are just wasting time and money, and running a big risk of losing your entire crop. If 21 years' experience in the manufacture of spraying materials means anything to you, then write us immediately and ask us to tell you about our line, especially as it costs you nothing but a post card to get our advice.

# REX BRAND

**Lime & Sulphur Solution**

**Arsenate of Lead**

**Calcium Arsenate**

The above mentioned lines are what we recommend, and what we know positively to be the reliable preventative for insects and fungi. There are a very large number of the most important fruit growers and orchardists in the Niagara Peninsula that use REX brand materials for their spraying, and the reason is that REX Brand has given them the results they are after—an abundant crop of clean, healthy fruit. Throughout the United States and Canada we have established nine large factories which are devoted exclusively to the manufacture of spray materials. This system of factories ensures the most satisfactory service to our customers. We, the REX companies, maintain a fellowship in The Mellon Institute of Industrial Research, where eighty-two expert scientific research chemists are employed, and through which all of our REX products have been worked out to the highest possible degree of perfection.

We would like to have the privilege of explaining to you the merits of REX spraying materials before you buy any other kind. Will you allow us to send you our booklet, "What Constitutes Quality and Merit in Spray Materials"? It is free to you for the asking, and a post card will bring it to you.

There is a REX agent located in nearly every fruit-growing district in Canada, but there are a few districts in which we are looking for live agents, and we invite applications.

We are also the Canadian Sales Agents for the "Friend" Manufacturing Co., of Gasport, New York, the manufacturers of the famous NuSYSTM line of spray outfits and accessories. See our full page advertisement of the "Friend" spray guns on Page v. in this issue. If you want a full crop of fruit this season, write us and get our expert advice.



**Canada REX Spray Co., Limited**

AUSTIN McGLENNON, Manager.

**BRIGHTON, ONTARIO**



**BISHOP BETHUNE COLLEGE**  
OSHAWA ONTARIO  
Visitor: The Lord Bishop of Toronto.

**A Residential School for Girls.**  
Young Children also received.

Preparation for the University. Art Department, including drawing, painting, wood carving and art needlework. Toronto Conservatory Degree of A.T.C.M. may be taken at the School. Fine, healthful situation. Tennis, basketball, skating, snowshoeing, and other outdoor games.

For terms and particulars apply to the Sister-in-Charge, or to the Sisters, of St. John the Divine, Major Street, Toronto.

## Better Trained Men

Are being demanded in every walk of life. It is the work and pride of

### ALBERT COLLEGE BELLEVILLE ONTARIO

to make its students 100% efficient, physically, mentally, and spiritually. Complete courses in Literature, Music, Expression, Art, Theology, and Physical Culture.

Commercial and Stenographic Department under the direction of a trained Accountant, teaching the most modern of accepted business usages. A SCHOLARSHIP IN AGRICULTURE is one of the many valuable scholarships awarded.

Write for calendar, stating course in which you are interested. Enter at any time.

E. N. BAKER, M.A., D.D.,  
Principal.

and amateurs, and compel them to buy only such varieties or strains which are undesirable for commercial use.

6. Fourth, that the Food Controller control the price of all vegetable seeds in stock and that a maximum price be set for the different varieties which are classed as commercial seed and sold only to commercial men who come under this class. And also to set a maximum price for unclassified seed as outlined and sold to amateurs or commercial growers as wanted.

7. That a list of vegetables be submitted to the Food Controller as standard commercial seeds and the maximum price suggested for each.

8. That the Food Controller meet the representatives of both seed growers and vegetable growers, both commercial and amateur, and come to some agreement suitable to all.

9. That seed produced outside of Canada and bought in other countries by people to be exempted from such control but taxed heavier than usual, and that seed produced outside of Canada but sold here be treated as home grown seed. This is to stimulate the use of home grown seeds in Canada.

10. That as vegetable growing is of national importance and that proper seed is essential to the success of the vegetable industry, that it be urged upon the Food Controller to take action quickly.

## Two Potato Crops in One Year

Intensive potato culture may be practised in this year of food shortage by planting a late crop after clover is cut or strawberries are picked. Sun-sprouted seed is required for the second crop.

Full benefit of the clover may be realized by planting tubers just after harvest. Un-

usual yields and high quality of potatoes may be expected from plantings made in early summer on old strawberry patches.

For such planting, the potatoes make quick growth if sprouted in partial sunlight in the spring. When spread out in shallow trays or on a floor where the sun shines part of the day, short, stubby, green sprouts grow to one-half to three-fourths of an inch long, and the tubers shrivel somewhat.

These potatoes may then be cut and planted with the sprouts on, care being taken not to injure them. At the Ohio Experimental Station such seed planted June 30 yielded nearly twice as much as ordinary cellar-stored potatoes planted the same day.

## Annapolis Valley Notes

Eunice Buchanan.

The 54th annual meeting of the Nova Scotia Fruit Growers Association was held in Kentville on January 15th, 16th and 17th. Owing to the deep snow the attendance was not large, but some of the meetings were of unusual interest.

Mr. F. C. Whitman, of Annapolis, talked about the wood lot as a factor in the future supply of barrel stock. He said that lumber was scarce, and the price for export is about \$28 a 1,000. Probably the big demand caused by the Halifax disaster will tend to advance this price. Owing to the deep snow in New Brunswick the lumbermen have come out of the woods.

With regard to the spraying of orchards, Professor Britain has a nicotine spray which appears to give very good protection from the sucking green apple bug.

Dusting with ninety parts sulphur and ten parts of arsenate of lead was considered



## DUSTING 40 ACRES A DAY

Dust can be applied so much faster (six to eight times) that frequent application can be made over large areas at critical times assuring better protection. The total weight of a Dusting outfit is less than a thousand pounds (liquid outfit two tons). So the grower can get on his land at any time.

Dust sticks to the fruit and foliage. There is no more wasted material than with liquid spray.

Dusting produces better foliage. It is necessary to have good foliage to have fruit.

Labor is scarce. We must increase production. Dusting is the logical, cheapest, quickest and surest way. Every grower who Dusted last year will Dust again. Join the Progressive Family.

Write to-day for our free book, "Complete History of Dusting."

We supply Hand and Power Machines suitable for every orchard.

We supply Dusting Materials to take care of nearly every pest.

Order early. Freight conditions are bad. BE READY THIS YEAR.

**NIAGARA BRAND SPRAY CO., Limited**

**Burlington, Ont.**

# OVER THE TOP

## The Quickest and Surest Way to Win DUST FOR THE FRUIT ENEMIES

Another year's success has more firmly established the merits of Dusting. Another year's results have proven to growers the benefits of this method.

On APPLES { Scab, codling moth, leaf roller, caterpillars, etc., are controlled better than with liquid spray.  
and PEARS { Pear psylla is also controlled with Dust.

On PLUMS, CHERRIES, { Rot, mildew, biting insects are completely controlled with Dust quicker  
PEACHES and GRAPES { and better than with liquid.



quite a feasible proposition, though spraying is generally cheaper and perhaps at times a better protective agent. The price of dust is about fifty per cent. more than last year, lime-sulphur and arsenate of lead have also advanced in price. Copper sul-

phate is about the same price as last year.

The evaporators are having to contend with a shortage of cars, and a shortage of coal. The severe weather has been continuous with periodical falls of snow. Occasionally there has been a thaw, but not for long enough to bare the ground.

## Grow Your Own Seed

**M**ANY persons in Canada save vegetable seed every year and find it profitable to do so. The seed they grow themselves often germinates better than that which they buy and they know that their own seed is from the kind, variety or strain of vegetable which they would like to have again next year. Many market gardeners grow their own strains of tomatoes, melons, beans, peas, corn, etc. These are, however, all annual crops from which seed can be gathered the same year that it is planted. Comparatively few people grow their own seed of beets, carrots, celery, cabbage, onions, parsnips, etc., which require two years to produce seed; but just as satisfactory results can be obtained from these as from the annual vegetables. The ordinary garden soil or that found on the vacant lot will be found satisfactory in growing vegetable seeds and, while soil that is fertile and in good condition will give the best results, no special kind of soil or manure is necessary.

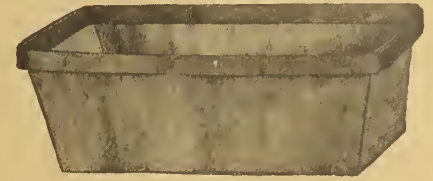
After the roots or plants have been set out in the garden, keep the surface soil loose and the ground free of weeds, in order to make the conditions as favorable as possible for strong growth. If there is danger of the plants being broken down, as there will be in the case of cabbage and celery

and perhaps some of the others, a wooden stake should be driven down near the plant and the latter tied to it. The space required for plants of beet, cabbage, carrot, parsnip and turnips to develop is from 2 x 3 to 3 x 3 feet, for celery about 1 x 3 feet, and for onions about 6 inches by 2 to 3 feet. One row of seed plants across one end of a twenty-five foot plot will take up little room and will be sufficient to grow more than enough of the seed that would be required of, at least, seven kinds of vegetables. Parsnips and carrots make the sturdiest plants, hence these might be planted at each end of the row, which might be planted thus: 2 parsnips, 2 turnips, each 2 feet apart; 3 celery each 1 foot apart; 5 onions each 6 inches apart; 2 cabbages, 2 carrots, each 2 feet apart. Between this row of seed plants and the first row of vegetables there should be about three feet.

One good beet will produce more than enough seed for an average vacant lot or city garden. Before the winter's supply is used up, select two well-shaped specimens, in case anything should happen to one, and set aside until spring, making sure that the beet is of good, dark color by taking a small piece out. When the soil is ready for seeding, plant the beet deep enough in the ground so that the top will be slightly be-

## Improved Peerless Plant Boxes

With Round Cornered Rims



The outside rim or band is unscored at the corners thus greatly strengthening the box and eliminating a very large percentage of the breakage hitherto experienced. The Round Corners do not interfere with the arrangement of plants in the box.

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The Sprayer that *Searcheth* the *Insects* and the *Fungus*

*Well made and little trouble*



The Hardie Sprayer is known in every section of America. A postcard will bring the complete Catalogue of the Hardie Line, and prices that are right.

**The Biggs Fruit and Produce Co., Limited**  
BURLINGTON, ONTARIO

We Can Fit You with any Size Sprayer to Suit Any Size Orchard

## FEED THE LAND

By using the best Manure and get

## GOOD CROPS

For Nurseries, Fruit Growers and Gardeners.

## Sure Growth Compost

(A Composition of all Natural Manures)

Makes poor land fertile and keeps fertile land most productive.

Special low prices for Summer Shipments, May 1st to September 1st.

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## BRUCE'S SEEDS

Business Established 1850

**Your Duty**—To grow all the foodstuff possible and to get the best results, high-grade seeds, such as BRUCE'S are a necessity.

**Our Duty**—To provide sufficient seed and of the highest grade possible.

**OUR DUTY IS DONE**



### Our 1918 Catalogue

is ready—112 pages of Seeds, Plants, Bulbs, Implements and Poultry Supplies.

*Worth its weight in gold. Free—*

*Write for a copy to-day.*

**JOHN A. BRUCE & CO., Limited**  
Hamilton Canada

### SMALL FRUIT PLANTS

GOOSEBERRIES — Josselyn! Red Jacket, Downing, Pearl, Houghton. CURRANTS—Perfection, Ruby, Cherry, White Grape, Lee's Profile, Champion, Black Naples, Black Victoria, Boskoop Giant. RASPBERRIES — Herbert, Plum Farmer, Cuthbert, Marlboro, Golden Queen. GARDEN ROOTS, STRAWBERRY PLANTS, RHUBARB. Write for Catalogue. WM. FLEMING, Nurseryman, 496-4th Ave. W., OWEN SOUND, ONT.

low the surface. The flower stalks will soon be thrown up and when the plant is well grown it is desirable to tie the stalks loosely to a stake as they are liable to be broken down. Most of the seed will ripen at one time. When the seed begins to turn brown and before it is quite ripe, cut the plant and tie up for a few days to dry thoroughly, then, with a light stick, thresh off the seed and blow clean, and keep dry until spring.

One head of cabbage will produce more than enough seed for the part of a city lot which is likely to be used for this vegetable. Save two solid heads and as soon as the ground is ready in the spring, plant about one-third of the head in the ground, and make a slit with a knife cross-wise over the top of the head, which will give the seed stalks a better chance to push out. In a short time these will do so and soon the plant will be in flower, pods will be formed and seed will develop. It is necessary to plant, at least, two cabbages, as the flowers of one must be crossed with those of another in order to get pods well filled with seeds on either. This cross-pollination is done by insects. It is more satisfactory to plant the whole cabbage with the root attached, as there is less danger of the head rotting when this is done. When the roots are left on, the head simply rests on the soil, the roots only being planted. Good seed can be grown from the stump or root after the head has been removed, though this method is not recommended. Where only a small quantity of seed is grown the earliest ripe pods can be cut off as they turn yellow and the others as they mature. The seed is beaten out when dry, and cleaned.

As in most parts of Canada it is not possible to carry cauliflower plants over the winter the seed of this vegetable is more difficult to grow than most kinds, but plants started early will, in some places, go to seed if the heads are left uncut. Sometimes cauliflower seed is grown in a greenhouse.

One carrot will produce enough seed for a home garden. Save two shapely ones and in the spring plant as recommended for beets. The seed ripens much more unevenly than the beet and it is necessary to harvest each head as the seed gets ripe. Keep these clusters of seeds in a dry, airy place, and, when the seed is thoroughly dry, rub or beat out clean and keep dry until spring.

### Celery.

One plant will produce enough seed for the home garden, but as disease sometimes attacks them it would be safer to plant three. At Ottawa, plants of both early and late varieties have been kept over winter outside by opening a trench just before severe frost and putting the plants close together and deep enough so that the tops are about level with the surface of the ground. A heavy layer of about a foot of straw is put over the tops and then soil thrown over to a depth of about fifteen inches. Even if the plants kept in the house or outside over winter have nothing but the heart or inner stalks left in good condition by spring, they will produce seed of good quality.

Plant in the spring about the depth the plant was when taken up in the autumn. It will not be long before the seed stalk will be thrown up. The seed does not all ripen at the same time, but as seed will give good results even if harvested a little on the green side, the heads should be cut before much of the earliest ripe seed drops. When, however, there is the crop of only one plant to harvest, the seed can be gathered as it ripens. If the plant is cut before the seed is ripe it should be hung up to dry. Celery

# PEERLESS PERFECTION

## Absolute Security

**W**HEN you go away for a day or turn in for the night, you are certain your stock is locked in—they can't get over, under or through the spaces—a perfect fence for hilly or uneven ground, through streams; protects poultry, ducks, geese, sheep and hogs. Can't sag or break down and will turn an unruly horse.

## Peerless Perfection Fencing

is made of best heavy Open Hearth steel fence wire, the impurities burned out and all the strength and toughness left in. Makes the fence elastic and springy. It will not snap or break under sudden shocks or quick atmospheric changes. Our method of galvanizing prevents rust and the coating will not flake, peel or chip off. Every intersection is securely clamped with the famous Peerless Lock.

Send for catalog. It also describes our farm gates, poultry fencing and ornamental fencing.

Dealers nearly everywhere. Agents wanted in unassigned territory.

**The Banwell-Hoxie Wire Fence Co., Ltd.**

WINNIPEG,  
MAN.

HAMILTON,  
ONT.





shells easily when the seed is ripe and as it is very valuable, loss should be avoided.

#### Onions.

A few well-shaped, firm onions should be saved for seed purposes. They should be planted out early in the spring about 6 inches apart in the row. If the onions have sprouted, the sprout should be cut off when being planted as straighter stalks will be thrown up if this is done. The upper side of the bulbs should be an inch or two below the surface of the ground after being planted. This will protect them from spring frosts. When the plants have grown sufficiently they should be banked up about 6 inches to help support the plants when the tops become heavy with flowers and seed. When the seed stalks show yellow near the ground the seed balls are cut off with about two inches of the stalk attached. The heads or seed balls are then spread out to dry and later the seed is threshed out. It is important to dry onion seed as rapidly as possible and to keep it dry.

The parsnip is treated much as the carrot and it is surprising to a beginner in growing seeds to find how much seed can be produced from one root. In saving a parsnip for seed, select one that is the most free from side roots and one of the shortest and thickest available. There is a worm which is liable to eat the parsnip seed before it is ripe but the worms can be picked off by hand before they do much harm if one is on the lookout for them.—Extract from Experimental Farm Bulletin. Further information in regard to the growing of seeds will be found in Bulletin No. 22.

#### Potato Situation

The Canadian Food Controller estimates that there is a total surplus in Canada over normal consumption of about 6,000,000 bushels of potatoes made up as follows:

Nova Scotia surplus .....	2,000,000
Prince Edward Island surplus ....	2,500,000
New Brunswick surplus .....	2,500,000
Western Provinces surplus .....	1,000,000

Total .....

Quebec shortage .....	8,000,000
leaving a balance of 6,000,000 bushels as total surplus for Canada.	2,000,000

#### Danger of Glut in the Spring.

Ontario is just about self supporting. It will thus be seen that every Province except Quebec has sufficient potatoes to ensure supplies during the winter if they are not held for increased prices. If they are withheld from the market it will mean a glut in the spring and consequently waste of a considerable part of the surplus. For this



Butterfly Flower

## Butterfly Flowers

These are the airiest and daintiest flowers imaginable, especially adapted to bordering beds of taller flowers and those of a heavy growth. The seeds germinate quickly and come into bloom in a few weeks from sowing. The floescence is such as to make the plant a veritable pyramid of the most delicate and charming bloom.

#### FREE!

One 15c. package will be sent FREE to each person sending us a postcard with name and address. A copy of our new 80 page catalogue will accompany it, from which you can choose your spring requirements.

**DOMINION SEEDS, Limited**  
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*Be Sure to say you saw this offer in The Canadian Horticulturist*

*The*  
**Aylmer**

## SPRAYER

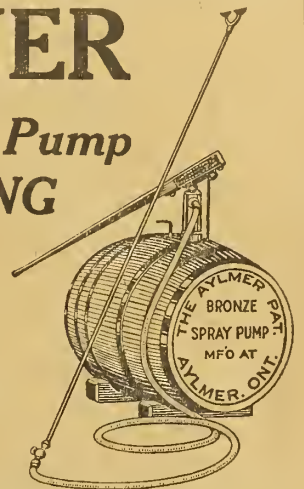
*The Only Spray Pump*  
**WITHOUT PACKING**

**TROUBLE PROOF**

**WORKS WHEN YOU NEED IT MOST**

**WRITE TO-DAY FOR BULLETIN H**

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WATER STREET, AYLMER, ONTARIO



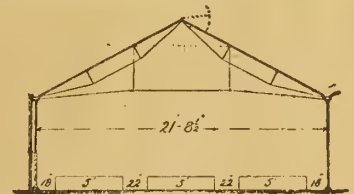
## For Spring, 1918

We have a fine assortment of  
Apple, Pear, Plum, Cherry,  
Peach and Ornamental Trees,  
Grape Vines, Shrubs, Roses.

Hedge and Small Fruit Plants, all well assorted.

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CENTRAL NURSERIES  
ST. CATHARINES - - - - - ONT.



STYLE A

We are now in receipt of our stock of Improved Malleable Iron Sash Bar Brackets for our Style C. Construction.

Brackets and other fittings for Style "A" will be sold at a discount until stock is sufficiently reduced.

Now is the time for a bargain.  
**KING CONSTRUCTION CO.**  
40 Dovercourt Rd. - - - - - Toronto.



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**Send for Shipping Stamp**

# Good Prices Always

## For Your Fruit and Vegetables

OUR facilities enable us to realize top prices at all times for your fruit, vegetables or general produce. Aside from our large connection on the Toronto Market, we have established branch warehouses with competent men in charge at Sudbury, North Bay, Cobalt, Cochrane and Porcupine. In time of congestion on the Toronto market we have a ready outlet through these branches. We never have to sacrifice your interests.

Branch Warehouses:  
Sudbury, North Bay,  
Cobalt, Cochrane and  
Porcupine.

**H. PETERS**  
88 Front St. East, Toronto



References: The Canadian Bank of Commerce (Market Branch) and Commercial Agencies.



**TOP DRESS**  
All Crops with  
**Nitrate of Soda**, no matter what other fertilizers you may have used—100 pounds per acre for seeded crops and 200 pounds per acre for the cultivated ones. The increase will yield large profits over cost.

Write on post card for our  
money making books

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## Paint Without Oil

Remarkable Discovery That Cuts Down the  
Cost of Paint Seventy-Five Per Cent.

A Free Trial Package is Mailed to Everyone  
Who Writes.

A. L. Rice, a prominent manufacturer of Adams, N. Y., has discovered a process of making a new kind of paint without the use of oil. He calls it Powdrpaint. It comes in the form of a dry powder and all that is required is cold water to make a paint weather proof, fire proof, sanitary and durable for outside or inside painting. It is the cement principle applied to paint. It adheres to any surface, wood, stone or brick, spreads and looks like oil paint and costs about one-fourth as much.

Write to Mr. A. L. Rice, Manufacturer, 37M, North Street, Adams, N. Y., and he will send you a free trial package, also color card and full information showing you how you can save a good many dollars. Write to-day.

## SKINNER SYSTEM OF IRRIGATION

Control complete. Prevents drought losses. Reduces labor bills. Increases profit. Special Portable Line for \$15.75. Send for new Bulletin.

The Skinner Irrigation Co.  
217 Water Street Troy, Ohio.

reason the Food Controller has announced that the prices will not be allowed to advance beyond those now obtaining.

By a steady and abundant supply of potatoes being placed on the market from the present time until the 1918 crop is available, the best interests of both consumers and producers will be served and the waste of any large part of the crop will be prevented.

## Expect Losses on Potatoes

The potato marketing situation appears to be serious, according to a statement issued by the United States Department of Agriculture. The total production in 1917 is estimated to have been 442,536,000 bushels, or the largest crop ever produced in the United States. Notwithstanding this fact, prices from the time of digging have ruled higher than in any previous year with the exception of last year when the crop was abnormally short.

### Only One-third of Crop Moved.

The Department of Agriculture has been able to compute the movement of the present crop with more accuracy than has ever been possible before, and from all the information available it appears that not more than one-third of the marketable surplus of the crop of 1917 had been moved up to December 31. The reserve stocks are so widely distributed that the transportation problems presented do not appear to be acute. Generally speaking, more potatoes could be moved if offered for shipment.

Unless large dealers promptly move the stocks on hand in order to speed up distribution and bring the large reserve still on the farms into the channels of trade, heavy wastage of the crop appears certain to result later in the season.

## Does a Clean Job— Saves a Lot of Work

That's the story of "SCALEXIDE," the premier dormant spray. It will absolutely clean up San Jose scale—will also control apple canker, collar rot, bud moth, case bearer, aphids, pear psylla, etc. No other spray will do all this. "SCALEXIDE" can be put on in one-half the usual time—a great saving in labor and you get through on time. Pleasant to handle. Sold on Money Back Basis.

Send today for booklet  
No. 16.  
B. G. PRATT CO.,  
M'F'g Chemists,  
50 Church Street  
Dept. 43 New York



## British Columbia

Hon. John Oliver, Provincial Minister of Agriculture, recently wired the Dominion Food Controller as follows:

"My officials report that hundreds of tons of onions cornered by a Vancouver operator are spoiling in the warehouse. Photographs show this statement to be true. Robertson of the vegetable committee has been notified. Can you not act, as such wastage is indefensible."

Mr. Oliver points out that the photograph reveals sprouts through the sacks in some cases as long as eight inches. The minister believes that if these goods were taken out of storage and thrown into an evaporator there would be a good deal of valuable material conserved.

Market Commissioner R. C. Abbott of Vancouver has called attention to the better demand which has ruled this year for apples grown in British Columbia, as indicated by the sharp decrease in the imports of apples grown in Washington and Idaho and the big gain in arrivals for British Columbia orchards.

The imports of apples from the United States into Vancouver in 1917 totalled 62,283 boxes, as compared with 78,150 shipped in there during the year before, a decrease of 15,867 boxes.

On the other hand the shipments of British Columbia apples to Vancouver during 1917 were 115,215 boxes, a gain of 6,955 for the year. Mr. Abbott says that the large stocks on hand at the close of 1916 were probably responsible for the drop in the United States shipments being greater than the increase in British Columbia lots. Prices on apples are hardly liable to decline and that there is no over-supply on hand.

On December 31 of last year, there were 40,720 boxes of apples in storage in Vancouver, as compared with 29,500 for the corresponding date of 1916. The present holdings are composed of 6,700 boxes of United States stock and 34,020 boxes of British Columbia fruit, against 8,100 boxes of American fruit and 21,450 boxes of British Columbia apples a year before that.

In the past two years the heaviest imports of apples from the United States came in the months of February, March and April, but there will be no need for any such importations this year. Mr. Abbott believes that 1918 will see more apples consumed in Vancouver than ever before.

## Cleaner and Better Fruit Result From Spraying



If you have had trouble in selling your apples or other fruit at good prices, because they have been scabby, wormy and distorted, why not insure thorough spraying by using a

**Spramotor**  
It isn't a SPRAMOTOR unless we made it

Thorough spraying will enable you (under normal conditions) to produce at least 75 per cent. No. 1 fruit and at the same time improve the condition of the trees.

The Spramotor has demonstrated its superiority in performance and build. There is a machine suited to your particular needs—hand or power. Prices from \$7.00 to \$400.00. Made in Canada. No Duty to Pay.

Write to-day for further information and FREE Illustrated booklet on Crop Diseases.

**SPRAMOTOR WORKS, 4003 King Street, London, Canada**

## DOUGLAS GARDENS

### Catalogue for 1918

Contains a complete list of a number of new plants that will interest customers this season.

A fine assortment of Paeonies. Perennial plants of all kinds. Shrubs and roses.

### BEDDING PLANTS

Standard Fuchsias from 2 to 3 feet. Carnations of the finest varieties. Heliotrope, Cowslips, Salvia, Salpiglossis, Snapdragons, Pentstemon, Lobelias, Pansies, Ageratum, Verbenas, Asters and Stocks.

**ERICK ERICKSON**  
OAKVILLE - ONTARIO





## The Ford Saves the Hay and Oats the Horses Eat

**I**T HAS been estimated that five acres of land are required to maintain one horse for a year, and that the same five acres would produce nearly enough food for two people. If 50,000 Canadian farmers each replaced one horse with a Ford, 250,000 acres would be added to the Nation's source of food supply and enough extra food made available to feed 100,000 people.

Just think what a great service this means to the country at the present time and the benefit to the farmers from the sale of food produced on this acreage.

A Ford car also saves the farmer a week or more of valuable time each year, which can be used for further productive work. The Ford travels three times as fast as a horse and rig—costs less to run and keep, and is far easier to take care of. With labor so scarce and high priced, time means money, so do not delay in getting your Ford.

# Ford

Touring - - \$495  
Runabout - - \$475  
Coupe - - \$770  
Sedan - - \$970  
One-ton Truck \$750

E. O. B. FORD, ONT.



**Ford Motor Company of Canada, Limited**  
Ford, Ontario



**CLASSIFIED ADVERTISEMENTS**

Advertisements in this department inserted at the rate of 15 cents a line, each line averaging seven words. Part lines count as whole lines, minimum of two lines accepted. Strictly cash in advance.

**BEES**

**WANTED.**—Thirty colonies Italian bees in April. Will Staples, 69 Hogarth Ave., Toronto.

**WANTED.**—Twenty-five or more colonies of bees. Full particulars to Robt. A. Fowler, Moorefield, Ont.

**BEES FOR SALE.**—Italians, 50 first class colonies in up-to-date hives. If interested, write for prices, etc., J. Raymond Ball & Sons, Knowlton, Que.

**BEES WANTED.**—Pure bred Italian Bees wanted in 10-frame Langstroth Hives for Spring delivery. Must be free from disease. The Root Canadian House, 73 Jarvis Street, Toronto, Canada.

Golden and three-banded Italian; also Carniolan Queens—tested, \$1.00 each; Untested, 75c each. For larger lots and bees in packages, nuclei, etc., write for prices. C. B. Bankston & Co., Buffalo, Texas, Leon Co.

**FOR SALE.**—Three band Italian queens from best honey-gathering strains obtainable. Untested queens, \$1.00 each; 12 \$9.00. Safe arrival and satisfaction guaranteed. W. T. Perdue, R. No. 1, Fort Deposit, Ala.

**BEE SUPPLIES**

**FOR SALE.**—One lb. Screw-top glass honey jars, \$5.40 per gross. Best quality Redpath extra granulated sugar, \$9.40 per cwt. Nice, clean, extracting combs, Hoffman wired frames, built from Full sheets medium brood foundation, \$12.00 per 100 F.O.B. here. Cash with order. M. Stephenson, Woodlawn, Ont.

**BEEKEEPERS.**—Please write for our Catalog. Write to-day for special prices on honey pails. Morgan's Supply House, London.

**MACHINERY**

**FOR SALE.**—One Nagley's Automatic Transplanter with fertilizer attachment. Planted only about five acres. E. A. Stonehouse, Implements, Mount Joy, Ontario.

**REAL ESTATE**

**ALL KINDS OF FARMS.**—Fruit farms a specialty. Write for Catalogue. W. B. Calder, Grimsby.

**SEEDS, PLANTS, SHRUBS**

**YOU WANT "Reliable Seeds."** get our Seed Price List and Save Money. Morgan's Supply House, London.

**PRIVET, Barberry, Cedars, Spruce, Pines, Oaks, Chestnut, Walnut, Mulberry, for hedges, windbreaks, timber, mailing size, prepaid; dozen same variety, one dollar; hundred, five dollars. List free. John Downham, Strathroy, Ontario.**

**FOR SALE.**—Seed Artichokes, Horse Radish, Potatoes (Cobbler and Early Harvest). Prize-winner Canadian Exhibition, Dahlias, Gladiolus. O. Sansby, 160 Kingston Road, Toronto, Ont.

**SPRAYS**

**SAVE MONEY.**—Get our Spraying and Garden Supply Catalog. Morgan's Supply House, London.

**PERRY'S SEEDS**

Alpine and perennials, unique collection; many new varieties obtainable from no other source.

Hardy and adapted for Canadian climate. Hardy Plant Farm, Enfield, England

**The Field-Root Seed Supply**

Canada before the war relied almost entirely on Europe for her supply of root seed. As long as agricultural and transportation conditions were normal there was no danger of Canada being inadequately supplied with seed of reasonably good quality, but with the outbreak of the war conditions became different. As the prospects for an early peace continued to remain far off, the agricultural activities in the seed raising countries of Europe had to be directed almost exclusively toward production of food for the armies. As a consequence, root seed growing was neglected, especially in France, a fact that became noticeable as early as 1915. The immediate result of this was a rapid decrease in the seed supply in Europe which made it necessary for the root seed producing countries to prohibit the export of root seed for the duration of the war. When this embargo took effect, it began to be realized, in far-seeing quarters at least, that there was a real danger of shortage in the seed supply needed by Canada in the near future. The danger gradually took on a more serious aspect, as to the difficulty of actually securing seed in Europe was being added the difficulty of shipping it across the Atlantic in safety.

At present the root seed situation is far from as satisfactory as one could wish it to be, and what it will be like later in the season is difficult to foretell. One thing is certain, however, and that is that the prices that have to be paid by root growers for seed this year will be abnormally high.

A catalogue just received from a highly respectable seed house quotes prices that tell a story that can hardly be misunderstood. They clearly indicate that the available root seed supply is small, a fact that also may be gathered from import figures of the last two years, as given by the Department of Customs. Root growers who have not taken the precaution to grow their own seed should secure whatever quantities of seed are needed for the coming season's root crop as early as possible.

**Labor Supply in B.C.**

Speaking at the conference of representatives of the provincial departments of agriculture held in Ottawa recently on the labor situation, Dr. McLean, of British Columbia, said the chief need appeared to be in the fruit districts. Although women and school children had been used last year, the crop would not all have been saved had it not been for the exceptionally long season.

The shortage of labor in connection with fruit farms is so great the government has been memorialized to allow indentured Chinese laborers to enter the province. There were, however, grave objections to allowing the entry of this race of men. The industrial population of British Columbia was bitterly opposed to their admission, and Anglo-Saxons on the coast were fighting against their importation.

**Fertilizer Being Provided**

The United States Secretary of Agriculture has announced the plan for the sale and distribution of 100,000 tons of nitrate of soda for fertilizer use purchased under the provision in the food control act, which authorizes the president to secure nitrate of soda and to supply it to farmers for cash at cost. A circular in which the plan is fully set forth has been mailed to the county agents, who

will receive orders for the nitrate and transmit them to Washington.

The f.o.b. price at ports will be \$75.50 a ton, growers paying the freight charges from the port of arrival and the State fertilizer tag fee.

**Details of Sales Plan.**

The plan is that in each county where there is a county agent to have the agents associate with themselves three or more local business men in each community, who will serve without compensation, to assist them in the sale of the nitrate. In each county where there is no county agricultural agent a committee of three or more local business men will be appointed.

Under the proclamation of the President of January 3, the importation, manufacture, storage, and distribution of ammonia for fertilizer purposes will be taken over by the Government under the immediate direction of the secretary of agriculture. The presi-

**You can destroy wild mustard in the growing grain, without injuring the crop.****OUR "FREE" BOOKLET TELLS HOW**

We make sprayers for every purpose. Prices range from \$7 to \$400. Whatever you require we can supply promptly. Send now for the FREE booklet on crop diseases and how to cure them.

Made in Canada.

No duty to pay.

**SPRAMOTOR WORKS**

4004 King Street

London, Canada

**FLOWER POTS****Hanging Baskets and Fern Pans**

We make the "Standard" Pot, the best Pot in the world—uniform, best of clay, well burned, in every respect superior to all others.

All our pots have rim on shoulder, thus allowing them to be placed together perfectly and preventing breakage in shipping and handling.

Place your Spring Order NOW.

A complete line and large stock of all sizes kept on hand to ensure prompt shipment.

Send for NEW CATALOG and PRICE LIST.

**The Foster Pottery Co.**

HAMILTON, ONTARIO.  
Main Street West.



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# THE CANADIAN HORTICULTURIST

Vol. 41 - No. 3  
MARCH - 1918

TORONTO, ONTARIO

50c. per Year  
3 Years for \$1.00



## FRUIT EDITION

DEVOTED TO CANADA'S COMMERCIAL FRUIT AND VEGETABLE INDUSTRY.  
ADDRESS ALL CORRESPONDENCE TO OFFICE IN

PETERBORO, ONT.



# Carters Tested Seeds

## Yield the Heaviest and Best Crops



Carter's Selected Ailsa Craig Onion.

The following are specially recommended :

Onion, Selected Ailsa Craig . . .	15c. pk. 75c. oz.
“ “ Yellow Globe Danvers . . .	15c. “ 40c. “
“ Pearl Pickler . . .	15c. “ 40c. “
Beans, Early Golden Wax . . .	45c. per pint
“ Canadian Wonder . . .	40c. “
Corn, Burpee's Golden Bantam . . .	35c. “
Tomato, Carters Sunrise . . .	25c. per pkt.
Swiss Chard . . .	10c. per pkt. 20c. per oz.

*Write for our complete 1918 Catalogue. We are in a position to deal promptly with all orders*

**Carters Tested Seeds, Inc.**  
133 King St. East - Toronto

# Apple Trees

## May Be \$75 to \$100 per 100 Next Year

The supply of French Seedlings has been growing less each year since the war began. Apple, Plum, Cherry and Pear Stock is all imported from France, and with the shortage existing, Nursery Stock is likely to be high for years to come.

Plant all of BROWN'S TREES you can this spring. They will be extra fine, true to name, and delivered in the best of condition. Regular prices at present, but they are bound to be higher.

Place your order NOW. Don't wait until the rush of spring work is on, but send in list for quotations at once.

The prices we can make you, either direct or through our agents, will bring your increased order.

For SEVEN YEARS back, more fruit trees have been TAKEN OUT than have been PLANTED. Prices for fruit are bound to be higher. There can be no over production. Fruit growers should "CARRY ON."

THE NORTHERN SPY APPLE is the great favorite everywhere. BROWN'S SPY APPLES are extraordinary. Every tree, well rooted, with good tops and straight as a string. The same applies to BROWN'S Baldwin, Delicious, Duchess, Jonathan, Rome Beauty, McIntosh, Fameuse, Scarlet Pippin, etc.

*Remember---When you plant BROWN'S TREES---THEY GROW*

## BROWN BROTHERS COMPANY, Nurserymen, Limited

Brown's Nurseries

Welland Co., Ont.



# The Canadian Horticulturist

Fruit Edition

Vol. XLI

TORONTO, MARCH, 1918

No. 3

## Commercial Dusting in a Quebec Orchard\*

Rev. Father Leopold, La Trappe, Que.

**B** EING a firm believer in the spraying of apple orchards, and having successfully sprayed orchards with lime sulphur wash and arsenate of lead, I was sorry to see my Friend power outfit destroyed in the fire that consumed our monastery on the 27th of December, 1916.

This accident led me to gather all the information possible on the new dusting method compared with liquid sprays. I wrote to reliable pomologists and entomologists, both in the United States and in Canada, and I went especially to the Ontario Fruit Growers' meeting in Toronto to hear Professors Wetzell, of Cornell, and L. Caesar, of Guelph, discuss the subject of dusting in all its phases. Finally, I decided to purchase an outfit and thus give the method a thorough commercial test during the 1917 season. I was the first to buy a dusting machine in the Province of Quebec. The model I bought was the Niagara D-1 Duster.

\*Extract from an address delivered at the recent annual convention of the Province of Quebec Pomological and Fruit Growing Society.

As the orchards at the Oka Agricultural Institute comprise some sixty-five acres in all, I decided to purchase the largest dusting machine on the market, the D-1 Niagara outfit, weighing a trifle over 300 lbs. To this I attached a 3 h.p. Fairbanks-Morse gasoline Z Model, which gave perfect satisfaction. Power is needed to get the best results with a dusting machine. I would not advise any machine less than 3 h.p. with a large dusting outfit. The whole outfit was rigged up and strongly bolted on a specially strong platform.

No comparison was made between the dusting and liquid sprayings, as I believe both are good and serve their purpose. No liquid sprays were therefore used on the 65 acres of the apple orchards during last season. It is therefore a strictly commercial test of the dusting method applied in our orchards and outlined here that I offer in this summary of our work.

Dusting for the control of insects, especially for Codling Moth, was made over the entire acreage, comprising

3,000 trees. This was not the case of the dusting for control of scab, which attacks, here at least, only such varieties of apples as the Fameuse, McIntosh, Russet, and sometimes Wealthy and Ben Davis.

In the test for the control of scab, we dusted only 800 trees out of the 3,000 in the orchards. So we will divide the cost of material and labor in two sections: (a) The **Scab Control** on 800 trees, and (b) the **Codling Moth Control** on 2,200 trees.

The usual recommendation of materials for the control of these two pests is the following:

90% Sulphur (Superfine).

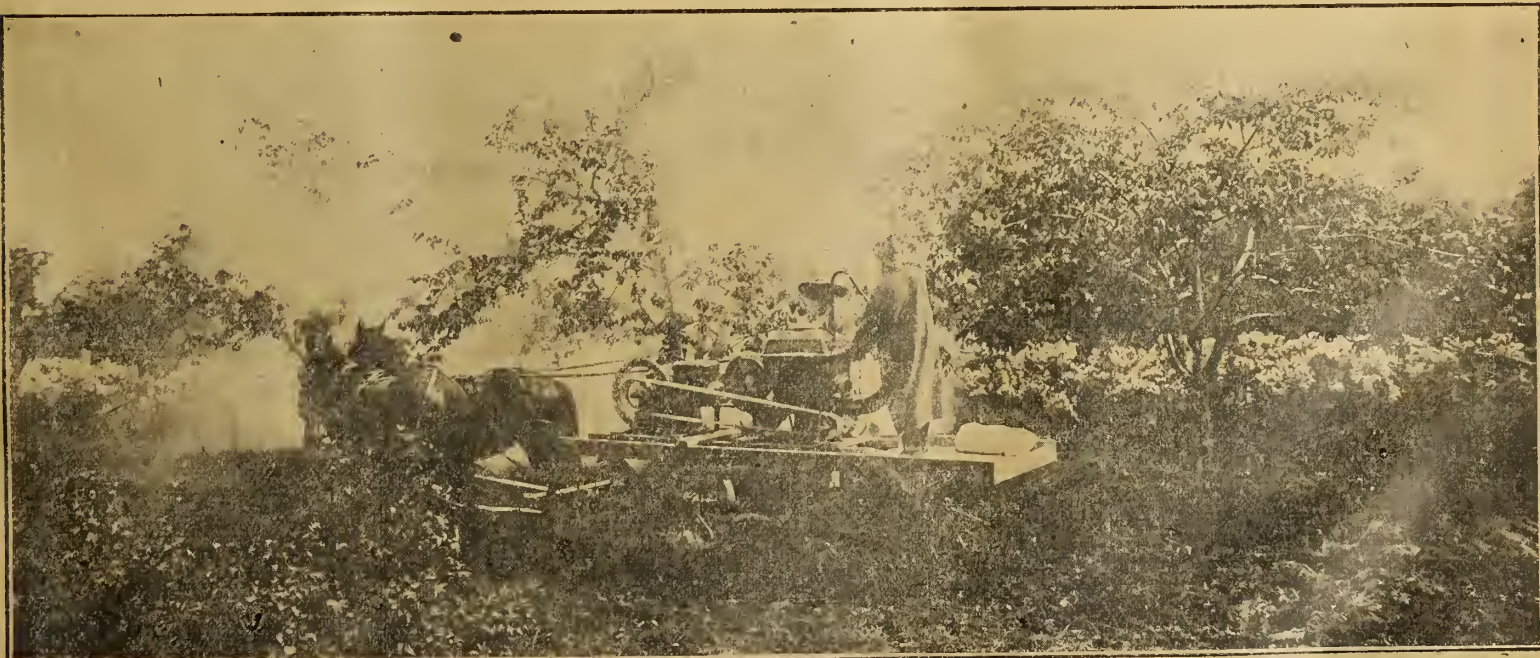
10% Lead arsenate, costing \$6.25 for 100 lbs. of mixture.

As I judged this was too costly and not necessary, I used instead my own mixture, for the first application, when the buds were showing pink:

50% Sulphur.

50% Gypsum as a filler, costing \$1.66 per 100 lbs.,

applied to 800 trees, at the rate of 1½



The duster used by the Oka Agricultural Institute last year is here shown in full operation. Note how the wind is carrying the dust into the trees which are of medium size. The operator holds the pipe in his right hand and regulates the amount of dust with his left. The total weight is about 300—49—lbs.



lb. (an average) per tree. I therefore used 1,200 lbs. of this mixture, costing \$19.92, or 0.0249 per tree. (N.B.—We did not need to mix any arsenate of lead in this application nor in the following, as there were no insects to control.)

The second application was renewed once again before the opening of the flower buds, when the petals of the individual flowers were separated but not open, buds showing pink or rosy, making the cost again 0.0249 per tree.

The third application for scab and first for codling moth, when the petals of the flowers had nearly all fallen. Material used:

40% Sulphur.

10% Lead arsenate.

50% Gypsum, as a diluent, costing \$3.88 a 100 lbs.

At 1½ lb. per tree on 800 trees, 1,200 lbs. costing \$46.56, it made an outlay of 0.0582 per tree.

The fourth application for scab control and the second for codling moth control was made with the same materials as the preceding one, and at the same cost: 0.0582 per tree. Application made two weeks after preceding one.

Summarising the expenses for the materials for the four applications on the 800 trees of test A:

1st application ..	0.0249 per tree
2nd     "     ..	0.0249     "
3rd     "     ..	0.0582     "
4th     "     ..	0.0582     "

Total .....\$0.1662     "

A little over 16½ cents.

#### Material Used for Codling Moth.

For the control of codling moth, the following material was used:

15% Sulphur.

10% Arsenate of lead.

75% Gypsum as diluent, costing \$3.12 for 100 lbs.

With 1½ lb. per tree on 2,200 trees, using therefore 3,300 lbs., brought the total cost to \$102.96, or 0.0468 per tree.

This first application for the control of the codling moth, made when most of the petals were fallen, was made with little sulphur in the mixture, as the varieties were not subject to scab. But even the 15% sulphur seemed to have an excellent effect on the foliage of the trees.

The last dusting on the 2,200 trees, after two weeks, was made with the same mixture as the preceding application, costing also 0.0468 per tree.

Summarizing the B test:

1st application .....	0.0468
2nd application .....	0.0468

Total .....\$0.0936

Or over 9 cents per tree.

#### Cost of Labor.

The saving in dusting compared with

liquid spraying is mostly in the cost of labor, as dusting can be done readily at least six times quicker than spraying thoroughly. But one must not be induced to think that dusting is an easy job and can be done in haphazard ways. No; the work must be done as

### Best for This Latitude

I like The Canadian Horticulturist very much, and am pleased that we have a paper of this kind in Canada. I am reading with interest the different articles from the growers, which are, I think, more useful in this latitude than articles that we get in the many American papers of the same kind.

—A. Lofquist, Marigold Farm, Clarkson's, Ont.

carefully as with spraying, but in a much quicker fashion. At the Oka Agricultural Institute, where we have some difficulty in getting water, we always lost a considerable lot of time in going from the orchards to the filling point, though the tank had a capacity of 250 gallons of water.

Taking everything into consideration, one can dust trees of a medium size at the rate of 200 per hour, supposing no time is lost and the horses are kept continually in motion. The cost for one application of 800 trees would therefore be, counting two men at 20c an hour and a team at 25c an hour, \$2.60, or \$0.0325 per tree. For the four applications, this would make 13 cents per tree. This is an average figure, as trees differ in size in an orchard, some being dusted quicker than others. Our trees are certainly smaller, as a general rule, than most trees in Ontario or in the States.

Adding two cents for contingencies, gasoline, etc., per tree, the total cost per tree averaged 15 cents.

Thus, taking in account the cost of the material on Test A, of 0.1662 and 0.15 cents for labor, this makes an average of 31 cents per tree for the control of apple scab and codling moth on Fameuse and McIntosh trees, on 800 trees.

The cost for the control of codling moth alone on 2,200 trees amounted to \$0.0936 per tree for material, and 0.15 cents for labor, making a total cost per tree of 24 cents in Test B.

#### Results.

In considering results, one must not forget that if ever we had a wet season, in the literal sense of the word, it was the season during which all the spraying was done in the province of Quebec in 1917. I never had to deal with

such a bad season as the last one. It would have been absolutely impossible for me to have got out in the orchard and gone over the trees with a heavy gasoline spraying outfit, hauling around the orchard 250 gallons of water, and do the work in time as we have done it with the dusting outfit. On the other hand, in a dryer season, the dust clings more to the foliage than in a wet season, thus more fungicide is apt to be present on the foliage to protect it against fungous attacks.

Taking the weather conditions into consideration, we have had an average of 85% clean fruit, free from scab or codling moth injury, and I am perfectly safe in saying that this is as good, if not better than we could have had, in such a wet season with liquid spraying.

One thing noted by everybody who had a chance of seeing the orchards during the past season was the notably clean foliage all over the trees, even on the 2,200 that received only a mixture of 15% of sulphur. We expect that next season, after having such good foliage, the crop will be more abundant. It has been noted by experts that the longer foliage rests in good condition on a tree, the better is the following crop. Good and thorough spraying is therefore always a good investment for the next season's crop.

Prices obtained during the season of 1917 for boxed apples certainly were a fair compensation for the trouble and expense required to keep the fruit clean.

### Apply Lime After Plowing

While it is better to use lime on acid soils at any time of the year than not to apply any, soil specialists at the Ohio Experiment Station recommend that this material be used after plowing for some cultivated spring crop. The lime can then perform its full function in promoting the growth of the bacteria that grow on clover roots. These countless bacteria, so helpful to clover crops, work only in the dark and require both water and air for their existence. Also, they can live only in soils either naturally or artificially supplied with lime.

Lime spread on the surface and not stirred into the soil can help the bacteria but little. They would die there for lack of moisture, and the lime would be dissolved and carried into the soil only after a long time. Lime plowed under is also out of reach of the bacteria, which lives chiefly in the upper three or four inches of soil where air is plentiful. Hence, applying lime after plowing in the spring and mixing it by cultivation into the soil during the summer makes conditions most favorable for the clover crops later.



# Economical Sprays and Spraying for 1918\*

Prof. L. Caesar, Provincial Entomologist, Guelph, Ont.

THE economical use of sprays will be an important matter among fruit growers this year. In discussing it I would like to take up first the question of insecticides and fungicides. As Paris Green has not been used to any appreciable extent for orchard spraying for a number of years we may pass it over with the remark that this year, from the latest quotations received, this poison likely will cost somewhere between 60c and 70c a lb.

Arsenate of Lead will be sold both in the paste and the powder form. One form seems to be practically as good as the other, except that the powder form is easier to ship, is unaffected by evaporation or frost and a little easier to mix before using. The powder form is practically twice as strong as the paste and therefore costs about twice as much, but only half as much per barrel is required. It is believed that there will be a sufficient supply of arsenate of lead available. The price is likely to be for 100-lb. drums about 20c to 25c a lb. for the paste form, and 40c to 48c a lb. for the powder. This is much dearer than last year.

Arsenate of lime—also called arsenate of calcium or calcium arsenate, and

in the case of the Canada Paint Co.'s product Kalcikill—is another arsenical that is on the market this year in fairly large quantities. It is sold both in the paste and the powder form, though mostly in the powder. The powder is approximately twice as strong as the paste. Both are white substances very similar in appearance to arsenate of lead. As a rule they contain about one-fifth more arsenic and therefore may be used in about one-fifth less quantity than arsenate of lead. They are also considerably cheaper. As stated before, arsenate of lead this year will cost from about 20c to 25c a lb. for the paste and 40c to 48c for the powder; arsenate of lime will cost from 14c to 18c a lb. for paste and from 28c to 35c for the powder. Roughly speaking, therefore, arsenate of lime costs only about two-thirds as much as arsenate of lead. Therefore, if its use is safe, it would be a boon to fruit growers.

## How Far to Substitute.

In the January issue of The Canadian Horticulturist, Mr. G. E. Sanders, of Nova Scotia, speaks very strongly in favor of arsenate of lime as a substitute for arsenate of lead. After discussing the comparative merits of the two substances he says, "It becomes plain that there is only one poison to

recommend with lime-sulphur and that is arsenate of lime, from one-half to three-quarters of a pound of the powdered material to forty gallons of solution." This is a very strong recommendation, in my opinion too strong, for Ontario conditions, though it may apply all right to Nova Scotia. I am of course, speaking only of Ontario. Every entomologist would gladly welcome a new and cheaper poison if he were sure that it was safe and effective, but he would be acting unwisely in encouraging fruit growers to adopt new insecticides before he was certain that they were safe and effective. Two years' test in one state or province is not, in my opinion, sufficient to determine this definitely. It is necessary, also, to get the benefit of the experience of others from other parts of the continent where climatic conditions may be different, because a mistake in this matter means too much loss to the fruit growers.

As for arsenate of lime, we know that it is cheaper than arsenate of lead, that it gives apparently as good control of biting insects and that it is more convenient to use with lime-sulphur, because arsenate of lead when added to lime-sulphur causes a black precipitate, while arsenate of lime does not cause any precipitate. We know also that it is safe with Bordeaux on practically any plant except peaches, but so also is arsenate of lime, a substance that many people, including myself once thought safe with lime-sulphur until further experience showed that under some circumstances it would burn severely. Arsenate of lime, however, used with water alone, will burn very severely; arsenate of lead will not. I have ruined almost every leaf on a pear tree with a single application of arsenate of lime. Whether it is safe in Ontario with lime-sulphur, or as safe as arsenate of lead, is in my opinion still undecided. Last week I received a letter from Dr. Quaintance, of the Bureau of Entomology, Washington, D.C., in which he expressed the opinion still undecided. Last week I performed, that it is practically safe on apple and pear trees, but that it is not safe on plum, cherry or peach, because of injury to foliage. Prof. Parrott, of Geneva, said he had tested it and felt so uncertain about its safety that he was going to advise the fruit growers of New York to continue the use of arsenate of lead for the present, at least. Prof. Brock, of Illinois, tested

\*An address delivered during February at the annual convention of the Ontario Fruit Growers' Association.



Eastern fruit growers who visit the fruit district along Okanagan Lake, B.C., for the first time, are generally surprised to find it is a semi-arid district, where much irrigation is practiced, and where surprising quantities of fruit are grown. In hot weather the growth is very rapid. One of the largest organizations of growers is The British Columbia Growers, Limited, at Penticton, whose packing house is here shown.

(Photo taken last August by an editor of The Canadian Horticulturist.)



both the home-made and commercial makes on apples in 1916 and 1917. He says "Our two seasons' results would not warrant any satisfactory recommendation as to its use." Mr. Kydd, at Whitby, and I, at Grimsby, tested it last year with lime-sulphur in comparison with arsenate of lead and lime-sulphur, (Mr. Kydd used it only half strength) and in both places it caused more injury than the arsenate of lead. On the other hand Mr. Harris, of Ingersoll, had practically no burning, and in Nova Scotia where large quantities were used, there was very little injury; Mr. Sanders says less injury than from arsenate of lead.

#### Favors Arsenate of Lead.

Taking all these things into account and remembering that Dr. Quaintance, though favoring its use on apples and pears, expressly warns against using it on plums, cherries and peaches, it seems to me difficult to form any other opinion than that arsenate of lead is still, for fruit trees in general, the safer spray, and that it is the part of wisdom, until the matter is settled definitely, not to adopt arsenate of lime wholesale as a substitute for arsenate of lead. By the way most of the injury from arsenate of lime does not in my experience become noticeable for more than a week after spraying and therefore the fact that the foliage is healthy a couple of days after spraying is no proof it will remain so. I also consider yellowing of leaves just as much a case of injury as the burning of small or large areas in the leaf.

Though I am still far from convinced that arsenate of lime with lime-sulphur is as safe as arsenate of lead with lime-sulphur, I consider that because of the large number of people in Nova Scotia and some other districts who have used it on apples without injury, we should be safe in compromising by using it instead of arsenate of lead on apples just before the blossoms burst, because foliage at this stage is not nearly so liable to spray injury as later. The best strength to use would appear to be three-quarters of a pound of the powder form or one and one-half lbs. of the paste to 40 gals. of dilute lime-sulphur. For all later sprays on apples and also for all sprays against biting insects on pears, plums and cherries, I think we should still rely on arsenate of lead.

As for arsenate of lead itself, I believe that on apples and pears we might lessen the amount for the Codling Moth spray this year and instead of two lbs. paste or one lb. powder use one and one-half lbs. paste or three-quarters pound powder to each 40

gals. liquid; for I do not think the Codling Moth will be very abundant this summer in most orchards, especially orchards where the crop failed almost entirely last year. This change, therefore, and the use of arsenate of lime before the blossoms will lessen the cost of orchard arsenicals considerably.



Liquid Sprays are the Best for Apple Scab.

On potatoes this year, as their foliage is hardy, I should use about one and one-half lbs. arsenate of lime powder or three lbs. paste either to 40 gals. of Bordeaux mixture or to 40 gals. of water, the latter containing about six lbs. of freshly slaked stone lime or eight lbs. of hydrated lime. The lime is used solely to prevent burning.

#### Fungicide.

Bluestone this year seems likely to cost about 14c to 18c a lb. in fairly large quantities. I might mention here that there are a number of fruit growers who prefer Bordeaux mixture to lime-sulphur. It adheres better to the leaves and fruit in wet weather and were it not for the fact that it is less convenient to use, costs more and russets the fruit badly some years, there would be few good reasons for preferring lime-sulphur to it for any but the first spray. It is the Codling Moth spray, as many have known for years, that causes most of the russetting, and so it would be wiser to use lime-sulphur for it.

Lime-sulphur will likely be available in sufficient quantity this year, but will cost at least \$1.00 a bbl. more than last year.

Soluble-sulphur is also available. Wherever there is difficulty in securing a sufficient supply of lime-sulphur, especially in San Jose Scale districts, it could be substituted for the first spray and if thoroughly applied would give good results. I do not recom-

mend it for any later sprayings and consider it unsafe to use with arsenate of lime or any other arsenical.

#### What Sprays to Omit.

Where fruit growing is a man's business I should advise that all of the regular standard applications as stated in the spray calendar be given. No good fruit grower should try to do with fewer than these standard sprays mentioned there; but when grain and stock raising are combined with fruit growing and all cannot be properly attended to it is clearly, because of the war, one's duty to give the grain and stock the preference. In such cases power outfits and the spray gun or a duster might be purchased to overcome the difficulty, otherwise it would be necessary for such persons either to omit spraying altogether for this year or else to give only one or two applications. In any district except where San Jose Scale exists the most important spray is the one just after the blossoms fall. Some years this one alone will give fruit almost free from scab and worms. The next most important is the spray just before bloom. These two sprays will most years but not every year give almost perfectly clean fruit. The spray before or as the buds are bursting is, of course, all important for San Jose Scale and for Oyster-Shell Scale and also some years for Apple Scab. With these facts in view every person can judge for himself which sprays it will pay him best to omit on his orchard.

#### The Parsnip Webworm

A. Gibson, Entomological Branch, Dept. Agriculture, Ottawa.

I have grown parsnips for years, but the last three years in succession they have been attacked by a kind of a caterpillar about half-inch or three-quarters of an inch long, rather pretty and with a dark bull head, very active when disturbed. They go for the crown stems and bore into the heart, causing them to rot. I tried various remedies early this year, but they came when the parsnips had grown large. —W. D.

The insect is the parsnip webworm, *Depressaria Heracleana*. It has been abundant during the past two years and we have received a number of inquiries concerning its ravages. Unfortunately it is a difficult pest to control. During the past year we were able to begin some experimental work on its control, but we have not as yet succeeded in getting perfect control. Mixtures composed of powdered sulphur and powdered arsenate of lead simply dusted over the plants where the caterpillars are present gave the best results. We hope to continue our control experiments whenever possible. It has been found that spraying with lead arsenate and Paris green did not give results hoped for.



# War-Time Spraying Problems\*

P. J. Parrott, Entomologist, New York Agricultural Experimental Station

**T**HE spraying of orchards during 1918 is conditioned to a certain extent on the ability of fruit growers to secure competent help. The war is also exerting a profound disturbing effect upon the supply and cost of certain insecticidal materials, upon which growers have largely relied for the defence of their crops. Arsenate of lead, lime sulphur and soap have all advanced in price, and no definite statement can be made as to whether they will continue to rise still more or decline in price. Because of the vital importance of affording efficient protection against insects and plant diseases, the United States federal authorities have taken steps to insure an adequate supply of fungicides and insecticides at prices which will not be prohibitory. Present quotations range from 15c to 18c a lb. for paste arsenate of lead; 30c to 34c a lb. for powdered arsenate of lead; \$8.50 to \$10.00 a bbl. for lime sulphur, and 9½c a lb. for potash fish oil soap.

As with all commodities, the fruit grower should be prepared to adjust himself to the present or higher scale of prices. In an agricultural preparedness programme economy should be considered; but in spite of the increased cost of spraying supplies, it is good policy for growers to continue to use preparations of tested value that are familiar to them. Spraying is relatively not a large item of expense in the cost sheet for a barrel of apples, and generally speaking, no financial outlay brings greater net returns than that expended for spraying. Moreover, the foregoing insecticides are standard articles of the chemical trade. High prices stimulate competition which tends to greater production, followed in turn by reduced value. With the free play of the law of supply and demand, the cost of these commodities is likely to drop, although they may not be as cheap as before the war.

As to choice of the two kinds of arsenate of lead, whether paste or powdered forms, most of our growers have expressed a preference for the paste preparations. As to the actual merits of the two sorts, there is little to add that is not generally well understood. When used with water only, most brands in paste form probably adhere better than the powdered materials, although some of the paste preparations may possess very poor sticking properties. When combined with lime sulphur or bordeaux mixture experiments

so far show that the two kinds of arsenates of lead differ very little, if at all, in effectiveness. However, this caution should be observed—in purchasing dry preparations select only those that are light and fluffy, and are to the touch an impalpable powder.

## Substitutes for Standard Insecticides.

As a general recommendation it is not advisable for orchardists to purchase mixtures of unknown merit. In planning for retrenchment one should consider very carefully all propositions for purchases of insecticides based on economy or on substitution for preparations of established worth. A few suggestions as to certain materials may not be out of place.

**White arsenic**—By reason of possessing a supply or a desire to economize, the question is not infrequently asked as to the possibility of using white arsenic as a poison for fruit and leaf-eating insects. There are two serious objections to the employment of white arsenic for this purpose: First, it is soluble in water and may prove very destructive to foliage; and, second, when combined with salsoda or lime to make sodium or lime arsenite, respectively, these compounds cannot be used with lime sulphur without danger of burning the leaves. To those who have supplies of white arsenic, the suggestion is offered that it be made into sodium arsenite and used with bordeaux mixture for the spraying of potatoes. It may also be noted that white

arsenic is not available and dealers in druggists' supplies offer no quotations as to price.

High prices for copper sulphate have led to the appearance on the market of a number of proprietary preparations of bordeaux mixture, containing also arsenate of lead. These are in paste form and require only the addition of water to have them ready for spraying operations. Because of convenience of handling they have a certain field of usefulness, especially for those who require bordeaux mixture and have not the facilities for making their own preparations. At strengths commonly recommended on printed circulars it should be noted that these commercial substitutes usually run low in copper sulphate, as shown in the accompanying Table 2, which fact should be considered in planning for effective control of diseases or estimating comparative cost with standard spraying mixtures. As they are chemically similar to bordeaux mixture a caution is given to growers that spraying of apple trees with them may be attended with injuries to foliage and with russetting and deforming of apples.

**Calcium arsenate**—This is a comparatively recent addition to the list of efficient insecticides, for which much credit is due to the Federal Bureau of Entomology. It is being recommended quite highly for certain purposes because of its toxic properties and cheapness, its cost being about one-half that for arsenate of lead. It bears the



One of 2,000 trees in the orchards of Lieut.-Col. Rance, Clinton, Ont. Ontario is likely to have fewer small orchards and more large ones like this in the future.

\* Extract from a paper read at the recent convention of the Western New York Horticultural Society, held at Rochester, New York.



Table 2.—ANALYSIS OF FOUR PROPRIETARY BORDEAUX MIXTURES.  
(On basis of 10 lbs. to 50 gallons of water.)

Bordeaux Mixture 4-4-50	Brand 1	Brand 2	Brand 3	Brand 4
Copper Sulphate .. 4 lbs.	1½ lbs.	1 1-5 lbs.	1 lb.	1 1-5 lbs.
Lime ..... 4 lbs.	1½ lbs.	¾ lb.	1 1-6 lbs.	1½ lbs.
Lead Arsenate ... 3 lbs.	2 2-3 lbs.	4 lbs.	2 lbs.	1 4-5 lbs.
Water ..... 50 gals.	50 gals.	50 gals.	50 gals.	50 gals.

usual handicap of most new spraying materials in that its merits are not generally appreciated and its full range of usefulness for all sections of the country have not been conclusively demonstrated. There is little question but that it is a promising arsenical which is well worth testing by growers. Its low cost makes a strong appeal when other arsenicals are so expensive. Calcium arsenate is quoted at 11½¢ per lb. for the paste and 22¢ per lb. for the powder in 100-lb. lots.

According to Dr. A. L. Quaintance, of the U. S. Bureau of Entomology, ar-

senate of lime can be profitably used for the control of chewing insects upon plants whose foliage is not tender. The poison, therefore, should not be used on the peach, cherry, plum, or other stone fruits, but may be used on apple, pear, grape and many vegetables. It may be combined with lime sulphur or bordeaux mixture without depreciating the value of the insecticide or the fungicide. For most chewing insects use three-quarters of a lb. of powdered calcium arsenate or two pounds of the paste form to 50 gallons of water, or whatever fungicide is used.

## Nova Scotian Results With Arsenate of Lime

G. E. Sanders, Dominion Entomological Laboratory, Annapolis Royal, N.S.

**A**RSENIC in the form of arsenate of lime costs but little more than half of what it costs in the form of arsenate of lead. At the convention of the Nova Scotia Fruit Growers' Association all of the experimenters who had used it, agreed that the arsenate of lime, lime sulphur combination, gave less burning of the foliage than the arsenate of lead lime sulphur combination. The experiments of the Dominion Entomological Branch have for two years shown that more apples remained on the tree where the arsenate of lime lime sulphur combination was used than where the arsenate of lead lime sulphur was used. Experimenters and fruit growers all agreed that no injury had followed the use of arsenate of lime and lime sulphur for the first three sprays. These are points well worth considering, and when we remember that the material comes in powder form and does not cause any black sludge in the bottom of the spray tank, we must admit that the poison cannot be lightly considered.

In the papers and discussions at the convention, it was found that in some experiments and in several orchards, when used with lime and sulphur as a fourth spray, arsenate of lime had given some slight, and in a few cases, serious yellowing. This was in all probability due to the slow breaking up of arsenate of lime, liberating small traces of soluble arsenic. If arsenic had been freed in any considerable quantities as in the reaction of lead arsenate of lime sulphur, burning instead of yellowing would have resulted.

In many cases yellowing was caused by the grower diluting his lime and sulphur away below the spray calendar and not reducing the arsenate of lime. Knowing that arsenate of lime is unsafe unless protected, we know that it was impossible for this procedure to result in anything but yellowing.

The elimination of small quantities of soluble arsenic, such as causes yellowing, proved an easy matter in 1917. Arsenate of lime (¾ lb. to 40 gals.), which alone yellows badly, was made safe for four sprays by adding 10 lbs of hydrated lime to 40 gallons of spray. The soluble sulphur (1 lb. to 40 gals.), arsenate of lime (½ lb. to 40 gals.) combination which normally yellows badly was made safe for four sprays by adding 10 lbs of hydrated lime to 40 gallons of spray. Arsenate of lead, 10 lbs. to 100 gallons, which normally yellows badly, was made safe in the Experimental Farm experiments by adding 5 lbs of hydrated lime to 40 gals. of spray.

For those who wish to retain the good points of arsenate of lime, and the point of cost is an important one, and do away with one defect that showed on the last spray in a few cases, we would recommend the adding of 5 lbs of lime, either slaked or hydrated, to 40 gallons of spray. We do not believe that the addition of lime is necessary for the pre-blossom sprays. We know of no case where it was necessary for the third spray in 1917, but in order to be on the safe side, we recommend for the third spray two gallons of lime sulphur, 1½ lbs of arsenate of lime and 12

lbs. of water slaked or hydrated lime to 100 gallons of water. This will not yellow apple leaves.

For the fourth spray we are recommending Bordeaux and not lime-sulphur. Arsenate of lime is safe with Bordeaux.

While not more than two per cent. of the growers of the Annapolis Valley had any complaint of yellowing (in a meeting of the Annapolis County Farmers' Association, 50 men, most of them sprayers, were asked for complaints about arsenate of lime, and not a man had any), we feel that the complaints made at the Nova Scotia Convention were well grounded and were due to traces of soluble arsenic. A few pounds of hydrated lime will eliminate all danger of yellowing, for we overcame a much more serious trouble of the same nature in the soluble sulphur arsenate of lime combination by the same means in 1917.

The low cost, the reduction in burning, the handy powder form and the freedom from the sludge in the spray tank, make arsenate of lime most desirable. The one defect of the new poison with lime sulphur, which showed in only a few cases in the fourth spray, can be eliminated as already outlined.

## Why an Orchard Should Pay

Prof. J. W. Crow, O.A.C., Guelph, Ont.

The planting of commercial apple orchards in the Province of Ontario is highly desirable for several reasons:

Ontario is not producing enough apples for home supply, but imports annually from Nova Scotia, British Columbia, Oregon and California.

Production in Ontario is likely to fall off still more because no commercial planting is being done. Very few commercial apple orchards have been set out in this province since 1911.

Of the thousands of young trees set in the boom years of 1905 to 1911, a large proportion have already passed out of existence. Probably not more than 20 per cent. of the trees planted during those years will figure in the commercial production of the future, and certainly not more than 40 per cent. of them are alive and receiving reasonable attention to-day.

The home orchard will never again be an important factor in commercial apple production in this province, because it is not large enough to be worth while. In seasons when scab control is difficult or when prices are down because of a heavy crop, the return from the small orchard is not large enough to justify the expense and risk



involved. When conditions are unfavorable, the small orchard passes quickly into a state of neglect; this is why apple growing in Ontario is at such a low ebb at present.

Fruit is an essential part of diet. While it is true that in case of necessity people can live without it, it is

also true that health suffers and nutritional complaints become more general in the absence from the dietary of fresh fruits and vegetables. The apple is the most important and most useful fruit of the temperate zone, and, from the standpoint of public health, its culture should not be neglected.

wishes to emphasize that he does not recommend the small quantity, but is only giving his experience in results. Different results might be procured with other brands of lead or by other sprayers.

### Be Prepared.

The time of application is undoubtedly important and as it is limited to a few days for each of the summer sprays with a possibility of bad weather intervening, it is essential that the conditions under the grower's control be so arranged that no time is unnecessarily lost. Good hose, good agitation, engine protected from spray, and non-clog nozzles are important.

A quick filling of the spray-tank should be arranged for. Previous to two years ago, we used a tank-filler, drawing water from a creek near the orchard. One-half hour was spent in filling the 180-gallon tank and getting back to the orchard. Three years ago we installed a pumping outfit which pumps the water into the elevated tank, holding twenty-four barrels. A two-inch hose is used to fill the spray tank and five minutes is all the time spent in filling the tank with water and spray material. Thus twenty-five minutes is saved on each tank. It would have been impossible to have sprayed the orchard in time with one sprayer during the past two wet seasons without this filling outfit. As a labor saver the writer expects to use a "spray gun," this season, whereby one man is supposed to do the work of two.

### Dust Spraying.

Dust spraying I believe is the method of spraying that will soon be in general use by efficient sprayers. An indifferent sprayer cannot hope to secure results with any spray or type of sprayer. As dusters become more generally used, we can at least hope for a more reasonable price for the outfit and material. We are getting results by using the liquid spray; have an outfit that makes the work comparatively quick and easy, and I believe cheaper than using the dust and duster at present prices. For these reasons, I will use the liquid spray this year, but expect, if dusting holds its present reputation, and the prices become more reasonable, to use a duster next year.

The best time to prune fruit trees is in March or April, after severe freezing weather is over and before growth starts. If it cannot be done then, defer the work until mid-June or early July. Do not prune during the period of rapid growth.

No other fruit crop can be grown with less trouble against insects than strawberries when properly handled.

## Spraying the Apple Orchard

F. Carpenter, Fruitland, Ont.

### Spraying Methods.

THE spray calendars give the time of application and materials to use for the spraying of apples. On examining them you will note in the figures, that 90 barrels of dilute spray is used in each of the summer sprays. This means a barrel of spray to approximately five and a half trees. To thoroughly cover every part of the tree at 200 lbs. pressure will require this quantity and the operators will not waste any if the work is properly done. Two men are used, one on the derrick with a line of hose (this man also drives the team) and one on the ground with a 30-foot line of hose. We spray two ways. The man on the ground can cover practically three sides of a tree, thus obviating the necessity of spraying four ways. He uses crooked nozzles and not only covers the outer portion of the tree, but also the inner portion where leaves and fruit are found and that are difficult to reach from the outside. We find it necessary to stop two and three times at each tree. Last year we used non-clog nozzle (containing a sieve) and found them very economical in time and material.

The quantity of arsenate of lead used, one and a half pounds to the barrel, is worthy of comment. The writer does not recommend this quantity for general use. The composers of spray calendars are in a position to advise why more lead is necessary. The use of larger quantities will naturally please the manufacturer and might be advisable in the case of apples where the grower does not use the quantity of spray per tree that we use. The writer maintains that this quantity of spray is necessary to do thorough work and as this quantity of lead has given the results desired (one pound to the barrel has been used with no difference apparent in results) we will use the same quantity or less this year.

It is claimed that arsenate of lead affects materially the fungicidal value of lime-sulphur. This being the case, it stands to reason that the less lead used in the mixture the stronger will be the action of the lime sulphur. This might account for some growers who use two and a half pounds or more of arsenate of lead to a barrel of spray, not obtaining the desired results in the control of apple scab. The writer again



This excellent germination of plum pits was obtained at the Horticultural Experiment Station, Vine-land Station, Ont., where considerable experimental work with plums has been conducted.



## What Fruit to Plant

Prof. J. W. Crow, O.A.C., Guelph.

I have a farm in the township of Willoughby, Lincoln County. Twenty acres I propose to lay out in orchard, gardens with shrubbery and small fruit. It is my desire to know exactly what are the proper things to plant on this ground, as it is clay. I am sending you by post a sample of the soil. I have it all under-drained. Fifteen acres I propose to put out in fruit. What sort of fruit trees would thrive on this soil, apples, peaches, pears, plums or cherries? What sort of small fruit, such as grapes, currants, raspberries, etc.? What in shrubbery, such as roses, lilacs, hydrangea, etc., and ornamental trees and shrubs, and what shade trees, such as oaks, elms, and maples, would do best?—H. L.

The sample of soil you sent looks like fairly stiff clay, and as I have some knowledge of the land in your vicinity, I would say it appears representative. This land is too heavy for peaches or sweet cherries, but should grow any variety of apple, pear, plum or sour cherry, also grapes, currants and gooseberries. It will grow any variety of raspberries, at least fairly well, although it is a little heavy for some of the better sorts, such as Cuthbert. It will grow roses, lilacs, and a long list of ornamental trees and shrubs, including pines, spruce, oaks, elms, spirea, bush honeysuckle, viburnum, and so forth. I do not think it will grow hydrangeas very successfully, but it will grow most of the desirable ornamentals. These statements are based, of course, on your statement that the land is already underdrained, as good drainage is essential for all the fruit trees mentioned, and for much of the other stock, although oaks, elms, and maples grow all through your district naturally on undrained land.

I do not know whether or not you wish me to specify desirable varieties, but I would suggest the following as commercial varieties of fruit trees. If you should wish a further selection of trees, especially for home use, I shall be glad to make recommendations:

**Apples:** Duchess, Wealthy, Snow, McIntosh, R.I. Greening, Northern Spy, This land is a little too heavy for Baldwin, although they thrive fairly well, but would not be long lived trees. Additional varieties for home use would be Red Astrachan, Alexander, Gravenstein and Golden Russet.

**Pears:** Almost the only commercial pear is Bartlett, although Clapp, Bose and Kiefer are included in a good many commercial plantations in Ontario. Pears generally require somewhat lighter soil than apples, but will grow on a well-drained clay. Varieties of pears for domestic use are Summer Doyenne, Seckel, Sheldon, Louise, Bonne de Jersey and Winter Nellis.

**Plums:** Burbank, Bradshaw, Imperial Gage, Reine Claude, Italian Prune, German Prune. These are the best commercial varieties, and include, also, the best varieties for home use.

**Sour Cherries:** Early Richmond and Montmorency are the only important commercial or domestic varieties.

**Grapes:** The best commercial varieties for your land are Campbell's Early, Niagara, Concord, Agawam; varieties for home use are Delaware, Worden, Lindley.

**Currants:** In Red Currants the best commercial varieties are Fay and Cherry. In Black Currants the best commercial sorts are Champion, Naples and Saunders. For home use you might add White Grape and Moore's Ruby (Red). Any variety of Black or Red Currant will grow on your land.

**Gooseberry:** The American varieties of Gooseberry such as Pearl, Downing and Red Jacket are all hardy, and will succeed with you. The English varieties, of which Whitesmith and Industry are the best, are somewhat difficult to grow successfully, but so far as your soil is concerned they should be satisfactory. They would prefer a position rather shaded by other trees, and not too much exposed to the strong sun in summer.

**Raspberries:** As before mentioned, your land is somewhat heavy for varieties such as Cuthbert, which is really the commercial variety, although you can, no doubt, grow it with fair success. It is also the most desirable variety for home use. The Marlboro is an early variety adapted to heavy land, and a fair commercial sort, but not good enough in quality for home use. The raspberries mentioned are both red. Blacks are not grown to any extent commercially. For home use you might plant Smith's Giant or Gregg, although these would do better on lighter land.

Roses of all kinds, also Lilacs should thrive with you. Some of the best ornamental shrubs are Barberry, Flowering Currant, Deutzia, Dogwood, Bush Honeysuckle, Japan Quince, Lilac, Philadelphus, Privet, Roses, Spiraea, Caragana. Most of these come in several varieties, and of such as roses and lilacs there are many named sorts from which you may select to suit your preference.

The best road shade and lawn shade trees are **Hard Maple, Soft Maple, Norway Maple, White Elm, Red and White Oak**, although the two latter are rather slow growing. The best evergreen trees are **White Spruce and Austrian Pine**. The best low growing evergreens are **Red Cedar** (in variety), **White Cedar**, also **Pinus Mugho** and **Pinus Montana**. For descriptions of the varieties you should secure catalogues from Stone & Wellington, of Fonthill; E. D. Smith, of Winona; John Connon Co., of Hamilton, and Ellwanger & Barry, of Rochester, N.Y.

## The Buffalo Tree Hopper

I have looked in vain in The Canadian Horticulturist for some reference to the Buffalo Tree Hopper. I have a young orchard (15 acres) apples pretty badly infested with this insect and unless I get some information I am afraid I will lose my trees. Any light either through pages of The Canadian Horticulturist or otherwise will be thankfully received.—G. C.

In Bulletin 250, issued by the Ontario Department of Agriculture, entitled, "Insects Attacking Fruit Trees," reference to the Buffalo Tree Hopper is described. The following is taken from this bulletin:

"This insect is found in all the fruit-growing districts of Ontario, and sometimes does much injury, especially to young apple and pear trees. The injury is almost entirely due to the egg-laying habits of the insect. The eggs are deposited on the upper side of the smaller branches and also in the case of young trees, on the trunks. In each instance before laying her eggs the female, with her sword-like ovipositor, makes a small, more or less crescent-shaped cut through the bark and then places the eggs in this. As soon as this is done, she makes another similar slit close to and just opposite the first, and deposits eggs in it too. The wood beneath these two slits does not heal, but causes an ugly scar which continues to enlarge for several years. As the whole upper surface of the branches and also, in exceptional cases, the trunks of young trees may be almost covered with these slits and scars, it naturally follows that such trees are weakened, dwarfed and more likely to succumb to severe winters or disease than uninjured trees. Some forest trees and shrubs are also infested.

"The winter is passed in the egg stage in the slits of the bark. The eggs hatch about the time the leaf buds burst. The young nymphs, after a very short time go to the ground, where they feed on almost any kind of succulent weeds, sucking the juice out of these. In July they begin to transform into adults which soon fly to trees and shrubs to lay their eggs. Oviposition continues all through August and September up to the first severe frost, which kills the adults.

"A simple means of control is suggested by the fact that the nymphs cannot thrive on the foliage of trees, but go to the ground and feed on plants such as thistles or other weeds; hence, if the orchard is plowed and kept free of weeds during May and early June, the nymphs will be starved. Trees that have already been weakened should be given good cultivation and fertilized to stimulate growth and enable them to recover more rapidly. Of course, care should be taken not to cultivate too long for fear of winter injury."



# The War and the Fertilizer Problem\*

Geo. W. Cavanagh, N.Y. Agricultural College and Experimental Station, Ithaca, N.Y.

WHEN the great war broke out in Europe, in August, 1914, fruit growers foresaw that their fertilizer supply would be curtailed by the discontinuance of the importation of the German potash salts. During the fall and winter months many inquiries reached the New York Agricultural College and Experiment Station as to what the result would be if a new supply of potash were not found. It seemed to be in the minds of men that the supply of potash was of the utmost importance for the production of our grains, for the growing of potatoes, and the development of our orchard crops. Looking back from three years' experience, I am inclined to believe that this anxiety on the part of the growers was the result of a careful and well-executed plan of fertilizer propaganda on the part of those interested in the sale of potash. Certain investigators and teachers were never in quite full sympathy with some of the popular teachings on the economic necessity for the use of as much potash as was frequently advised.

Since that time, the use of potash has been greatly curtailed. During the past year, there were produced in the United States, from various sources, approximately 30,000 tons of potash, an amount exceedingly small in comparison to that which was used prior to 1914. The diminished use of this material has not been accompanied by a diminished production of our principal food crops. The danger that was ap-

prehended in the fall of 1914, has not materialized.

The war continued, and last April the United States saw fit to enter it, and now we are faced with new and much more critical problems affecting the supply of fertilizer. In order that some of these problems may be a little more clearly understood, I desire to draw attention to certain things fundamental to the production and manufacture of commercial fertilizers. All fertilizers consist of mixtures of three classes of materials, containing respectively, the elements of plant food, nitrogen, phosphoric acid and potash. The usual carriers of these elements are the muriate and sulphate of potash for the potash, acid phosphate for the phosphoric acid, and nitrate of soda, ammonium sulphate, calcium cyanamid, or some vegetable or animal by-product, as cottonseed meal or tankage. When a mixture is made so that it contains some of each of the three essential elements, the mixture is known as a complete fertilizer.

Up to August, 1914, for all intents and purposes, Germany may be said to have controlled the world's supply of potash from her mines at Stassfurt. The nitrate of soda is obtained from Chile, in South America, the ammonium sulphate is a by-product of our coke and gas industry, and the animal and vegetable by-products come from our meat industry and the making of vegetable oils. All the nitrogen-bearing materials used in our fertilizers are obtained in either North or South America. The production of acid phosphate, which furnishes available phosphoric

acid in the most economical form, depends on the treatment of a rock phosphate with sulphuric acid. This rock phosphate is obtained in mines in Tennessee, the Carolinas, and in Florida. In its manufacture, the ground phosphate rock and sulphuric acid are used in approximately equal parts by weight. For example, 1000 lbs. of the ground rock treated with 1000 lbs. of sulphuric acid, produces about a ton of acid phosphate. Prior to the war, there was produced in the United States, a large quantity of sulphuric acid over 80 per cent. of which was utilized in the manufacture of this fertilizer. Our entrance into the war has had a decided influence on the production of this material for the reason that the Government must use great quantities of sulphuric acid in the production of munitions. All explosives, including gunpowder, smokeless powder, nitro-glycerine, and trinitrotoluole, commonly known as T.N.T., require nitric acid in their production. In this country, all the nitric acid is produced by bringing together sulphuric acid and nitrate of soda, the same material which is commonly used as a source of nitrogen in fertilizers. This of necessity created a rival demand for sulphuric acid, with the result that the fertilizer manufacturer, whether he produced his own sulphuric acid, or purchased it, had to do so at a decidedly increased cost. This same reason also accounts for the increase in the cost of nitrate of soda.

The next question to consider is whether a partial or complete withdrawal of acid phosphate from the market would be attended with no more serious results than followed in the case of withdrawing potash. It is a question of the relative agricultural importance of the two constituents, phosphoric acid and potash. If we consider the prices at which these constituents sold before the war, it might be concluded that they were of about equal importance, since they sold for approximately the same price per unit. Equality of cost does not necessarily carry with it an equality of value. If further, we consider this matter from the point of view of amounts of these materials used by growing crops, we may also be inclined to think that they are of equal importance. For example, good authorities give the following figures as the amounts of phosphoric acid and potash found in certain of our standard crops:

	P. Acid.	Potash.
20 bu. of wheat .....	20	35
50 bu. of oats .....	18	45
65 bu. of corn .....	22	60
150 bu. of potatoes ....	20	75

While the foregoing figures show



Marking ground in the greenhouse, preparatory to planting lettuce.

\*Extract from an address delivered at the recent annual convention of the Western New York Horticultural Society.





A McIntosh Red apple tree, 6 years old, at Rutland, B.C., before pruning.

that there is a greater demand for potash than there is for sulphuric acid, it must not be considered that the withdrawal of potash would be attended with more disastrous results than the lack of phosphoric acid.

### The Real Problem.

In the last analysis, it is not a question of the relative importance of these two constituents to the production of crops that confronts us. If it were, the figures given would indicate that the withdrawal of our potash supply would be much more serious than the withdrawal of the phosphoric acid. We must not lose sight of the fact that our problem is a question of the supply of these two constituents and that the quantities furnished through commercial sources, as in fertilizers, is not the main source for the production of crops. The phosphoric acid and potash that went into last season's wheat crop were not all purchased in the form of fertilizers. Our principal source of these constituents is in the soil itself. The using of fertilizers is in reality the making of very small additions to the soil's supply. It seems to me that if we would get a correct view of the problem, we must not fail to take into account the supply of these things in the soil.

In order to have some concrete evidence on this point, I secured samples of soil taken from farms of well-known orchardists. These samples were analyzed for their total potash content. The average weight of soil per acre to the depth of eight inches, approximates 2,000,000 pounds. Using this figure as a basis, I computed from the results of the analyses the quantities of potash present in these soils per acre, and found in the soil from:

Hiram McOmber, North Rose, N. Y.,	Potash
Clark Allisk, Medina, N.Y.	32,800
B. J. Case, Sodus, N.Y.	35,600
Geo. Wignall, Walworth, N.Y.	37,200
F. Mason, Albion, N.Y.	38,400
W. L. Markham, Buffalo, N.Y.	38,400
H. E. Wellman, Kendall, N.Y.	42,000
F. E. Wood, Waterford, N.Y.	43,200
	45,400

The average quantity of phosphoric acid per acre, ranges from 2,000 to 4,000 lbs., and is seldom above the latter. It will be seen, therefore, that the relative quantities of these two constituents on hand are in about the proportion of eight to ten times as much potash as phosphoric acid. These figures only tend to confirm what has been known to those who have watched fertilizer experiments, namely, that for our soils, an adequate supply of phosphoric acid is of greater importance than a commercial supply of potash. The source of phosphoric acid is within the boundaries of our own country and to make it commercially and agriculturally available, three things are essential. First, the mining of the rock phosphate; second, the production of sulphuric acid; and third, adequate transportation facilities. I have no information concerning the present status of the mining of the rock. In the manufacture of sulphuric acid before the war, this country imported from Spain about 1,250,000 tons of pyrites. Pyrites is a mineral consisting of iron and sulphur which is used as a source of sulphur in the making of sulphuric acid. Owing to well-known difficulties in the ocean-carrying trade, this supply from Spain is to all intents and purposes cut off. There seems to be a greater need for ships for other purposes. In addition to this, it is learned that the Government will require 1,500,000 tons of sulphuric acid during the year 1918, to carry out its program. All this points, it seems to me, to an inevitable increase in the cost of phosphoric acid.

### Small Fruit Suggestions

L. J. Farmer, Pulaski, N.Y.

One grower tells me that the St. Regis raspberry is more dependable, even for the spring crop, than the Cuthbert. He says that it seems to become more fruitful from year to year, after several years; while Cuthbert seems to fail and run out after two good crops. Another man tells me St. Regis is a failure so far as its fall crop is concerned, and the berries are too small for market in the regular season. All this comes from New York growers. One man tells me that he sows buckwheat among his raspberries and currants when cultivating in early spring. No more cultivating is done until after fruiting. The pickers trample down the buckwheat and it acts as a mulch and smothers the weeds. He says it is always wet you know under buckwheat straw. Another man tells me that unless he maintains constant cultivation among his raspberries and currants until the fruit begins to ripen, the berries will dry up. The soils must be different. What

is poison to one, is food to another. You must find out for yourself.

I find that one of the greatest values of a winter mulch for strawberries is in killing the early crop of spring weeds. If the mulch is left on until the plants have grown a little and look a little sprouty, it kills myriads of weeds. Even if your soil does not heave and cause winterkilling of your plants, it will pay you to experiment with mulching. Try mulching part of your bed and leave the rest unmulched. In picking time, notice how clean of weeds your mulched portion will be compared to the unmulched, even if the straw has been removed from the field.

Mulching with straw to overcome the effects of drouth does much, but cultivation does more. The wide matted row produces one or two good pickings in a very dry season and then sizzles up. Suppose that you dig up all the plants but the narrow row of parent plants; or better still, don't allow the runners to form a wide matted row, cut them off; then cultivate this row close up to the plants, but shallow, from the time that the berries set until picking is over and you will be surprised at the quantity and quality of the fruit produced.

### Dust Kills Slugs

Dust like lime, soot, tobacco dust or salt is recommended to kill slugs, or the shell-less snails that often cause damage in greenhouses. These creatures are covered with a slime. Hence, ashes or air-slaked lime spread over their routes of travel will adhere to this slimy coat, and the slug soon dies.

Soot, tobacco dust, salt and hydrated lime exhaust the pests but are not caustic. Sliced vegetables or crackers sprinkled with arsenical powder have also been valuable in reducing the numbers of slugs.

When pruning do not cut out large limbs.

Never prune in frosty weather. Frost-bitten wounds are slow to heal.



The same tree after pruning. Notice the proportion of young wood cut away.



# Best Varieties of Vegetables

**O**WING to the scarcity of seed of many varieties of vegetables this year it will not always be possible to get those which are desired. Orders should be sent in early therefore, if not already done, in order to ensure obtaining at least some of the best sorts. In the following list, based on tests made at the Dominion Experimental Farms and Stations in Canada, several varieties of vegetables of almost equal merit of some kinds are suggested. If it is not possible to get one it may be possible to get the other. All are good varieties.

**Beans.**—(Round Pod Wax) Round Pod Kidney Wax, Pencil Pod and Brittle Wax; (Flat Pod Wax), Wardwell Kidney Wax, early, and Hodson Wax, late; (Green Pod), Stringless Green Pod, and Early Red Valentine, early, and Refugee or 1000 to 1, late. Lima and Pole beans are not very satisfactory except where the season is long and warm. The bush varieties of Limas are the most satisfactory. Scarlet Runner is the most reliable Pole bean, but Kentucky Wonder is one of the best in quality.

**Beets.**—Crosby Egyptian, Detroit Dark Red, and Early Model.

**Borecole or Kale.**—Dwarf Green Curled Scotch.

**Brussels Sprouts.**—Improved Dwarf. The Dwarf varieties have been found more satisfactory than the tall ones.

**Cabbage.**—Early Jersey Wakefield, Copenhagen Market, early; Succession, medium; and Danish Ballhead and Drumhead Savoy, late; and Red Dutch, red.

**Cauliflower.**—Early Snowball and Early Dwarf Erfurt.

**Carrot.**—Chantenay, Danvers Half Long, Early Scarlet Horn for extra early.

**Celery.**—Golden Self Blanching (Paris Golden Yellow) early; Winter Queen, Evans Triumph, and Perfection Heartwell, late; White Plume for coolest parts.

**Corn.**—(Extra early), Early Malcolm, Malakoff, and Peep O'Day; (early), Golden Bantam; (medium), Early Evergreen or Black Mexican; (late), Country Gentleman and Stowells Evergreen; Squaw for coolest parts.

**Cucumber.**—Davis Perfect, White Spine, and Chicago Pickling.

**Egg Plant.**—New York Improved, Long Purple, and Black Beauty.

**Lettuce.**—Grand Rapids and Black Seeded Simpson (early loose curled), Iceberg, Giant Crystal Head, Im-

proved Hanson, Salamander, All Heart, and Crisp as Ice (head or cabbage).

**Melons, Musk.**—Nutmeg type), Long Island Beauty, Hackensack, and Montreal Market; (yellow fleshed) Emerald Gem, Hoodoo and Paul Rose.

**Melons, Water.**—Cole Early, Ice Cream, and Phinney Early.

**Onions.**—Yellow Globe Danvers and Early Red Wethersfield. Prize Taker, especially for transplanting. Early Flat Red and Australian Brown are good where the season is short. Dutch sets ensure a crop in a short season when, if grown from seed, the onions may not mature.

**Parsley.**—Double Curled.

**Parsnip.**—Hollow Crown of a good strain is the best. Intermediate is also good.

**Pepper.**—Early Neopolitan of the large varieties and Cayenne, Chili and Cardinal of the small ones.

**Peas.**—(Extra early) Gregory Surprise; (early) Thos. Laxton, Gradus, Nott Excelsior, American Wonder, and

Sutton Early Giant; (second early) Sutton Excelsior and Premium Gem; (medium to late) McLean Advancer, Heroine and Stratagem; (tall late sorts) Telephone, Champion of England and Quite Content.

**Radish.**—Scarlet White Tipped Turnip, Rosy Gem, and White Icicle.

**Salsify.**—Long White, Sandwich Islands.

**Spinach.**—Victoria Thickleaved, Viroflay.

**Squash.**—Long White Bush, Summer Crookneck; late, Delicious, Hubbard.

**Tomatoes.**—(Extra early) Alacrity, Sparks Earliana; (early and main crop) Bonny Best, Chalks Early Jewel. Later good sorts are Matchless and Trophy (scarlet), and Livingstone Globe and Plentiful (purplish pink). Ignotum for canning.

**Swede Turnips.**—Champion Purple Top.

**Potatoes.**—(Early) Irish Cobbler or Eureka Extra Early; (main crop) Green Mountain, Gold Coin, Wee MacGregor, Carman No. 1. Early Ohio is a good extra early pink sort, but is not very productive.

## “Everbearing Strawberries”

As the result of experiments with “everbearing” varieties of strawberries the United States Department of Agriculture announces that it is now possible in the northern States, and presumably in portions of Canada, to have strawberries in almost continuous supply from early summer until frosts occur. “Everbearing” varieties developed by growers in recent years from long-fruited plants of short-season types and from hybrids have passed a successful trial period, and are now recommended by the department for planting. The best varieties and cultural practices—somewhat different from the culture of common strawberries—are described in a publication which has just appeared from the Department of Agriculture, Farmers' Bulletin 901, “Everbearing Strawberries.”

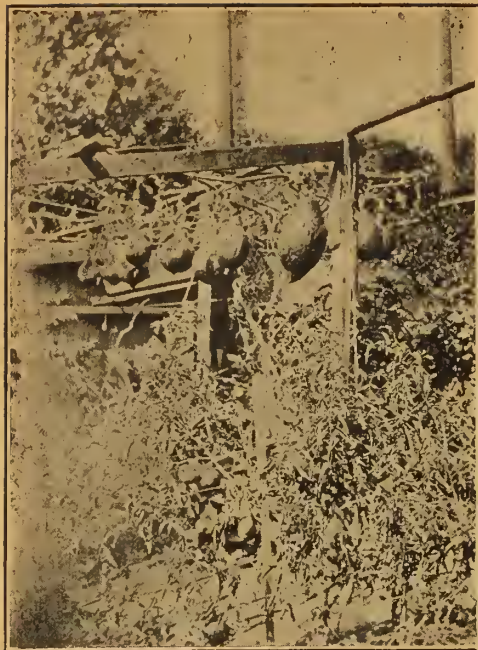
Besides their long fruiting season, some of the new varieties are hardy, and resistant to disease. The southern boundary of the territory in which the everbearing types can be grown most successfully is described by the specialists as the northern parts of Virginia, Kentucky, Arkansas and Kansas. The two leading varieties of the everbearing type are the Progressive and the Superb. The Progressive has been found to withstand the winters of the Middle West better than most other varieties except the Dunlap, one of its parents. The Superb also is hardier

than most varieties of strawberries. A remarkable characteristic of both is that if blooms are killed by frost they soon flower again. This character makes them especially valuable for sections subject to late spring frosts, which often destroy the crop in ordinary sorts.

The new everbearing sorts, which are sometimes confused with other varieties showing abnormal behavior, differ in that they bear fruit under favorable conditions more or less continuously from the season of the ordinary varieties until frost. Certain varieties of the everbearing type which have been set for a year bear a fair crop during the regular strawberry season. For the period immediately after this early summer crop the amount of fruit obtained is small. In August, September and October it becomes larger, and under favorable conditions the late summer and autumn yield may equal or exceed the early summer crop. They are not well adapted to sections having long droughts except when irrigation can be supplied.

Plants of the everbearing varieties should be set at the same time as those of other varieties—as soon as the ground is in condition in the spring. Growers of the Progressive and American varieties, which have rather small fruit, agree that a more fertile soil is required for them than for the ordin-





These squash were grown on a rack in the backyard garden of Wm. Cox, Bruce Street, Hamilton. In front of them red and white tomatoes were successfully grown.  
(Photo by Mrs. R. B. Potts.)

any sorts, in order to increase their size. Another type of strawberry requires a larger supply of moisture than do the sorts which produce only plant growth after the early summer fruit crop.

### Black Knot on Plums and Cherries

Pruning out affected twigs and branches and spraying with lime-sulphur and Bordeaux mixture are recommended for the control of black knot on plum and cherry trees. This fungous disease is recognized by knots a half-inch to several inches in length which partly encircle smaller twigs and occasionally large branches. Young knots and new portions of old knots are velvety and of greenish color in spring and become jet black by fall.

Removing and burning diseased parts in the fall or early winter tends to check the spread of black knot. Twigs should be cut back about five inches below the knots, and bark should be removed for about three inches around a knot on a large branch. Wounds should be disinfected and painted with gas tar or white lead.

Spraying with one part of lime-sulphur to eight parts of water is recommended as late winter treatment before buds start. Bordeaux mixture, made with four pounds of copper sulphate and four pounds of hydrated lime to 50 gallons of water, is advised for application when the buds are swelling and two or three times later at intervals of two weeks.

Wild plums and cherries are attack-

ed by black knot and often spread the disease to cultivated sorts. Damson and slow growing European varieties and sour cherries appear to be most susceptible, while Japanese varieties are less frequently affected.

### How to Make Soap

Will you kindly publish one or two good recipes for making soap?—F.G.E.

Ordinary soap is a valuable contact insecticide. Boil 1 lb. of Ivory soap or other soap of known quality in 5 or 6 gallons of water until dissolved; dilute with water to 14 gals. and spray while still warm. It is recommended for such insects as plant-lice and red spiders. For brown or black aphids use 1 lb. whale oil soap in 4 gals. of water. For green aphids, thrip and leaf hopper, 1 lb. in 6 gals. rain water.

### YOUR QUESTIONS ANSWERED

Wm. Hunt, O.A.C. Guelph

#### Raising Cockscomb.

Can you give me some hints on the raising of cockscomb (Celosia), comb type? I would like information from seeding to blooming time. I have had no success with them.—A. C. H., Hamilton.

A poor strain of seed is often accountable for non-success with these plants. English-raised seed usually gives good results, as they are more commonly grown there. Seed should be started in a greenhouse, hotbed, or warm window, about the end of April or early in May, in sandy soil not too rich in fertilizers. Transplant singly into small 2½-inch pots when four or five leaves have started. Keep them indoors, or in the hotbed frame, temperature about 70 to 75 degrees, until about the end of May. Avoid a too close humid atmosphere. About the first week in June, the plants may be hardened off gradually to outdoor conditions. About the middle of June, the plants may be re-potted into 5-inch pots without disturbing roots much. A soil of one part beach sand and six or seven parts of loamy potting soil, with a fair amount of dry powdered cow manure, about two parts, as fertilizer, will suit them. When established in large pots, plunge (sink) the pots to the rim out of doors in an open position in the garden. A little shade for an hour or two on very hot days may be given them in the middle of the day. Keep them fairly well watered, not too wet. Avoid sprinkling them overhead too much after the comb has formed. They may require potting into larger pots later on in the summer. Avoid anything like a chill, as they are strictly

tropical plants. Instead of growing all of the plants in pots, a few may be planted out in the border about the second week in June, when the ground has got quite warm.

#### Planting Dahlia Roots.

Should old dahlia roots be planted whole or not, and when would be the best time to plant them here?—H. G. B., Westmount, Que.

It is best to cut the old clump or root into sections or divisions before planting. Each section must have a good-sized piece of what is known as the crown of the plant, that part between the base of the old flowering stem and the fleshy tubers. This crown produces the young shoots for flowering purposes. Each section should also have one or two of the fleshy tubers attached to it. The tubers produce roots only to support the plant, so that it is necessary to have a portion of the crown before mentioned attached to each section for the production of flowering growth. Dahlia roots may be started indoors in a window, or in a hotbed or greenhouse in April, and planted out early in June after all danger of frost is over, or the dormant roots may be planted out in the ground about that time, or perhaps a week or so earlier if weather permits. Dahlias are easily frozen.

#### Cutting Back Grape Vines

**A**FTER the freezeout in the winter of 1911-12, many Niagara vines in my vineyard were cut back severely. Since then it has been difficult to produce well ripened wood in these vines, because they would freeze back to the ground in winter, and send up an array of large, green bull-wood sprouts each spring. The roots of these vines, apparently, were still so vigorous they needed more wood to nourish.

Three experienced friends looked over these vines with me, about July 1st, 1915, and advised me to let all suckers grow, and to put up six to eight canes instead of four to each Niagara vine. After employing this method the past two years, I have succeeded in getting these wayward vines up on the trellises again. Last year they fruited well, and produced well matured wood.

See that the shrubbery or perennial border does not become bare during the early thaws. It is a good plan to scatter straw or even manure over it.

One can obtain much more satisfaction and pleasure by using a frame, hot or cold than you can if you bought your plants from a florist.—R. S. Rose, Peterboro, Ont.



# Success With Tomatoes

John Gall, Inglewood, Ont.

**T**HE soil for the earliest pottings may be similar to that in which the seed was sown, but when the plants are transferred into pots four and a half or five inches in diameter, a stronger and more compact compost should be used.

The sand may be entirely dispensed with in favor of burnt garden refuse or wood ashes. A small quantity of bone meal will also be found an excellent additional ingredient.

At this, and all subsequent stages, firm potting is a sine qua non of successful tomato culture. The soil should be rammed down hard in the pots, not half-heartedly, but with a will, for loose potting, while it will ensure plenty of foliage, will not be productive of a satisfactory crop of fruit. Slow, sturdy growth, with bunches of fruit in close proximity to each other, is the object to be aimed at, and this can never be secured by loose potting or planting.

No matter what has to hold the plant, whether it be pot, box or the greenhouse bench, it must never be filled to the top with soil. The object of this is to allow for several top-dressings of soil as the plants grow taller. If they are carefully watched, it will be seen that from the stem just above the soil, new roots are thrown out. Encourage these, as they help in feeding and strengthening the plant at a time when fruiting is near, and when every bit of nutriment is necessary. Two or three times during the season fresh layers of loamy

soil therefore should be supplied until the box or pot is almost filled to the top.

Tomato plants are great feeders, and in order to ensure a satisfactory crop of fruit their roots require to be constantly nourished. This, because of the plant's stem-rooting habits, is best done, by means of surface mulchings and top-dressings. It is a mistake commonly made to commence feeding the plants with manure too early. The best time to begin is when the second bunch of fruits have become well set. Afterwards the regular application of manure in liquid form, if possible, may follow. It should at first be given in weak doses, being slightly, and only slightly, increased as the fruit nears maturity. Any of the artificially prepared manures, such as Carter's or Thompson's, may be used with confidence, provided they be applied as directed. These can be applied in their dry, powdered state, but they must not be given when the soil is dry. Give a good watering first, and then spread the manure over the surface of the soil, taking care not to exceed the quantities recommended by the manufacturers.

When grown under glass, plenty of air must be given; the tomato is impatient of too close and sluggish a temperature. The aim should be to avoid extremes of heat and cold, and this can be managed if attention be given to ventilation and the stoking of the greenhouse fire. Later in the season, when the sun gains power, fluctuations

of temperature cannot so easily be guarded against, but there will be nothing to fear if the house is thoroughly ventilated.

Tomatoes revel in plenty of moisture at the roots. Watering must, therefore, never be neglected, but care must be taken not to apply water when the soil is already sodden. Give the plant a chance to absorb the moisture and then supply water when it is required.

## Planting Celery

E. P. Smart, Brockville.

**T**HERE are more ways than one to produce well-grown and well-bleached celery, so we cannot say of any one method, this is the right and the only way. The important thing is to find the simplest and cheapest way of producing this type of celery, especially in these days of increasing scarcity of labor. Excellent results have been attained by the old system of planting in trenches; but this method is perhaps the most laborious of all.

Early celery must be planted in hot-beds or in the house early in March, but for the late or main crop the middle or end of April is early enough. The young plants after being shifted once, can be permanently started out the end of June or in July. The amateur would perhaps do as well to buy well grown plants, if they are needed in only small quantities.

Celery responds to the richest soil and calls for considerable moisture—being what is called a “gross feeder.” Whether manure or concentrated fertilizers are used, they should be well mixed with soil to, at least, a depth of five or six inches. Thus prepared, the enriched soil will give good results. Nitrate of soda in small quantities may be put around the plant when it has become well established.

## Value of Coal Ashes

“Would a layer of finely sifted coal ashes dug into a rather heavy clay soil, have any injurious effect on the vegetation or would it be of any benefit in loosening up the soil.”—L. J.

Coal ashes would help lighten up the heavy clay, but sand would be better if you could obtain it. It would help a great deal if you dug over your soil in the fall and left it in a rough condition, so that the frost could get into it. Coal ashes have no injurious effect on vegetation, but if you put on too much they have a tendency to make soil very open and porous.—A. H. MacLennan, O.A.C., Guelph, Ont.

Set out a strawberry bed as soon as the soil can be worked and the plants secured. Senator Dunlap is a good variety.



The products of back-yard and vacant lot gardens as exhibited last fall at the Mount Hamilton Community Show.



# The Canadian Horticulturist

COMBINED WITH

## THE CANADIAN HORTICULTURIST AND BEEKEEPER

with which has been incorporated  
The Canadian Bee Journal.

Published by The Horticultural  
Publishing Company, Limited.

PETERBORO AND TORONTO : ONTARIO.

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Vice-President ... Hermann Simmers, Toronto.  
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The Only Magazines in Their Field in the  
Dominion.

Official Organs of the Ontario Fruit  
Growers' Association, and of the  
Ontario, Manitoba and New Brun-  
swick Beekeepers' Associations.

1. The Canadian Horticulturist is published in  
three editions on the 25th day of the month  
preceding date of issue in three editions, as  
follows:

**FRUIT EDITION:** This edition is devoted  
entirely to the interests of the commercial fruit  
and vegetable growers of Canada.

**FLORAL EDITION:** This edition is devoted  
to the interests of amateur fruit, flower and  
vegetable growers, and includes a section for  
backyard gardening. It meets the requirements  
of town and city people especially.

**APICULTURAL EDITION:** This edition is  
known as The Canadian Horticulturist and Bee-  
keeper, and is devoted to the interests of the  
beekeepers of Canada. In this edition several  
pages of matter appearing in the first and  
second issues are replaced by an equal number  
of pages of matter relating to the beekeeping  
interests of Canada.

### SUBSCRIPTION RATES

The subscription rates of the Fruit and Floral  
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One year .....	\$ .50 cts.
Three years .....	1.00
To societies and associations .	.40 cts.
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The subscription rates of The Canadian Hor-  
ticulturist and Beekeeper are:

One year .....	\$1.00
Three years .....	2.00

For foreign subscriptions and subscriptions in  
the city of Toronto, owing to the postal regula-  
tions, add 25 cts. a year extra for postage.

### CIRCULATION STATEMENT FOR FEBRUARY

Fruit Edition .....	2,725
Floral Edition .....	5,264
Beekeeper .....	1,550

Total printed .....	9,539
	9,839

Advertising rates, \$1.40 an inch. Copy re-  
ceived up to the 20th. Address all advertising  
correspondence and copy to our Advertising  
Manager, Peterboro, Ont.

### OUR GUARANTEE

We guarantee that every advertiser in this  
issue is reliable. We are able to do this because  
the advertising columns of The Canadian Horti-  
culturist are as carefully edited as the reading  
columns, and because to protect our readers we  
turn away all unscrupulous advertisers. Should  
any advertiser herein deal dishonestly with any  
subscriber, we will make good the amount of  
his loss, provided such transaction occurs within  
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is a condition of this contract that in writing to  
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ment in The Canadian Horticulturist."

Rogues shall not ply their trade at the ex-  
pense of our subscribers, who are our friends,  
through the medium of these columns; but we  
shall not attempt to adjust trifling disputes be-  
tween subscribers and honorable business men  
who advertise, nor pay the debts of honest  
bankrupts.

Communications should be addressed

THE CANADIAN HORTICULTURIST,  
PETERBORO, ONT.

## EDITORIAL

### The National Service Girl

The very real difficulties which delayed  
the reaching of an agreement between the  
representatives of the fruit growers and of  
the National Service Girls in their negotia-  
tions concerning the basis of remuneration  
and other conditions of employment of the  
girls during the season of 1918, makes it all  
the more gratifying that an agreement has  
been reached which appears to be satisfac-  
tory to both the growers and the girls. Un-  
doubtedly some of the girls worked hard  
last season, and had little to show at the  
end of their season's effort in the way of  
financial returns. Some, whose railway ex-  
penses were high, are understood even to  
have lost money. This was unfortunate.  
On the other hand, many fruit growers in  
the Niagara District last season failed to  
make ends meet. Such a condition requires  
thoughtful consideration of each other's  
difficulties by both sides.

Occasionally some people seem to find it  
difficult to understand how it is some grow-  
ers can afford to pay better wages to their  
help than others. The reasons are not hard  
to locate. Growers, for instance, who ob-  
tained their land twenty-five or thirty years  
ago, when land values were low, can pro-  
duce more cheaply than those growers who  
more recently have acquired land at any-  
where from five hundred to over one thous-  
and dollars an acre.

This is especially true where fruit growers  
have placed mortgages on their land in  
order to purchase or improve it. In seasons  
when crops are good and prices high, the  
burden of high land values is not much felt.  
In years, however, like the last three or four  
that have visited the Niagara District the  
burden of high land values becomes a heavy  
one to the grower, and often proves the de-  
termining factor between loss and profit on  
the year's crops. Some growers, through  
long experience, are more proficient than  
others, or are better situated as regards  
marketing their crops, or have a more  
readily available labor supply. Where grow-  
ers are favorably situated in regard to fac-  
tors such as these, it is possible for them  
to pay better wages than other growers can  
who are not so fortunate. Growers who ob-  
jected to increasing the scale of wages to the  
National Service Girls were impelled to this  
action by very real reasons, which should  
be sympathetically considered.

A pleasing feature of the discussion at  
the Ontario Fruit Growers' convention of  
the work done by the girls last season, was  
the manner in which one grower after an-  
other bore testimony to their satisfaction  
with the work done by the girls, and ex-  
pressed their desire for their services during  
the approaching season. As a result of the  
experience gained last season, not only by  
the girls but by the growers as well, even  
better results may be expected from the as-  
sistance of the girls this year. The new ar-  
rangement by which district secretaries will  
be able to supervise the work of the girls  
and adjust any complaints that may arise  
between them and the growers will serve to  
protect both the growers from overpaying  
inexperienced and incompetent girls, and  
the girls from those few growers who may  
show an inclination to take advantage of  
them. Great credit is due Miss Harvey, of

the Provincial Labor Department, for her  
services in supervising and arranging for  
the work of the girls, as well as for her  
tact and good judgment in her dealings with  
the fruit growers. In all of her work, Miss  
Harvey, of course, has had the valuable co-  
operation of the director of the Department,  
Dr. Riddell.

### The Fertilizer Situation

Increased food production is hampered or  
facilitated just in proportion to the extent  
to which difficulties are placed in the way  
or removed from the path of producers.  
This is what makes it hard to understand  
why the Dominion Government should call  
for increased production, and at the same  
time maintain a high duty on such essentials  
for production as fertilizers, agricultural  
implements, spraying materials and other  
articles growers must have if they are to  
respond effectively to the Government's ap-  
peals. The action of the Government in re-  
ducing the duty on tractors and cattle was a  
step in the right direction. Since then it  
has shown a tendency to apologize for this  
action, the wisest it has yet taken towards  
increasing production. This tendency does  
not look encouraging as regards further  
progress in the same direction.

Fertilizers are an article on which it is  
most important that the duty should be re-  
moved. They are necessary for maximum  
crop production, in the Maritime Provinces  
particularly, and to an increasing extent in  
Quebec and Ontario. Any measures which  
may be taken to reduce their price will in-  
crease the amount used, and consequently  
the crop production. In the main, the in-  
gredients entering into fertilizers have been  
imported, since the war started, almost en-  
tirely from the United States.

The duty on acid phosphate in particular  
should be remitted immediately. It enters  
more largely than any other ingredient in-  
to manufactured fertilizers, and it is also  
used in larger quantities than any other im-  
ported ingredient by farmers who buy the  
separate substances required for fertilizers,  
and either apply them by themselves, or mix  
them on their barn floors with other in-  
gredients, and then apply them to the soil.  
Roughly, eighty to ninety per cent. of the  
total weight of fertilizer ingredients used  
in Canada is acid phosphate. Sometimes  
the manufacturer buys this and mixes it with  
such substances as nitrate of soda, muriate  
of potash, and tankage, to make a complete  
or manufactured fertilizer, and sometimes  
farmers buy acid phosphate and either ap-  
ply it alone to the ground, or mix it with  
other substances and then apply it to the  
ground.

As acid phosphate is not manufactured in  
Canada the result is that whether the fertil-  
izer manufacturer uses acid phosphate in  
his various brands, or whether the farmer  
buys acid phosphate and applies it, mixed or  
unmixed, with other ingredients, to the soil,  
both alike pay the duty. No one is protect-  
ed. The duty, therefore, becomes simply a  
revenue tax imposed upon one of the most  
important means of increasing food produc-  
tion in Canada. In addition to all this, we  
have reason to believe that purchasers of  
fertilizer ingredients in the United States  
will probably have to pay twenty-five per  
cent. more for their acid phosphate this year  
than they did last year. This will of itself  
materially add to the cost of fertilizer to  
the grower. The duty as quoted will be  
correspondingly higher than in previous  
years, and will, therefore, become an added  
tax on each ton of the fertilizer used. Since,  
therefore, the Government has within its



power to somewhat relieve the load imposed upon the farmer in purchasing this fertilizer, and can do so without reducing a single bit of protection to the fertilizer manufacturer, the case for the removal of this duty in particular is a very strong one.

## Testing Times

The past three years have been trying in the extreme to thousands of commercial fruit growers, particularly in Ontario. This, in many cases, has not been due to any fault of their own, but to conditions over which they have had no control, such as three unfavorable seasons in succession, shortage of labor and the greatly increased cost of supplies. Not a few growers have been unable to stand the strain, and have relinquished their farms. Many others are holding on, with despair gnawing at their hearts, hoping that the 1918 season will prove a favorable one, and thereby enable them to regain some, at least, of the ground they have lost.

It is in testing times such as these that a man who is a real, not merely a professing, Christian, has a tremendous advantage over the man who is not. The latter feels, even if he does not allow himself to think, that he is struggling more or less blindly against forces and circumstances that are greater and more powerful than himself. The burden often is heavier than he feels himself capable of maintaining. The former, because he believes implicitly that God loves him with a wonderful love, is able to believe also the promise that "all things (even the hard things) work together for good to them that love God." He accepts, also, the assurance that "God is able to make all grace abound toward you: that ye always having all sufficiency in all things, may abound to every good work." Because of all this, he has the joy of knowing, in his own spiritual experience, how true it is that "God will keep him in perfect peace whose mind is stayed on Him, because he trusteth in Him." There is scarcely any tragedy greater than that of those who, because of unbelief, are forcing themselves to carry burdens that it is not God's desire that they should bear.

## Nursery Stock Supplies

Attention was called recently by The Canadian Horticulturist to the advisability of those fruit growers who were thinking of planting fruit, ordering their nursery stock with the least possible delay. Since then considerable correspondence with Government officials and with nursery firms both in Canada and in the United States has been conducted. The results tend to justify the advice first given. Thousands of farmers who have been growing fruit in a small way as a side line, find it impossible longer to spray, prune and cultivate as they must if they are to obtain satisfactory results. They are, therefore, neglecting their orchards. In due time their places will be taken by men who will make the production of fruit their principal aim. For this reason such an authority as Dominion Fruit Commissioner D. Johnson believes that this is a good time to plant trees. In giving this advice, he bases his opinion on what long experience has proven to be true, that it is usually a good time to plant trees when others are pulling them out or destroying them.

When the war broke out in 1914, most Canadian nurserymen had a fairly large stock of fruit trees, including adequate supplies of seedling stocks. The uncertainty of

conditions brought about by the war, led to a curtailment of plantings by the nurserymen. Now that confidence has been restored to some extent, they are finding it impossible to obtain their usual supply of seedlings from France, where the shortage of labor has greatly depleted the stocks available for export. It is anticipated, therefore, that fruit trees may be scarce for some years to come. There is still available, however, a considerable quantity of young trees that were planted before the war. The prices of these trees have not as yet been materially advanced. The supply is limited. A material increase in their price is likely to take place after this season. That is why we believe this to be a favorable season for ordering young nursery stock by those who purpose giving their plantings good care.

## SOCIETY NOTES

Public spirited citizens, who desire to encourage boys and girls to cultivate gardens of their own, will find much of interest in the report of potato growing contests for boys in Carleton and Russell Counties of Ontario, which has recently been printed. This work for five years has been conducted entirely through the generosity of Mr. R. B. Whyte, of Ottawa. Last year twenty-three boys in Carleton County, and seventeen boys in Russell County, entered the competition, the interest in which has grown from year to year. A considerable number of the competitors, as well as a number of girls who took part in a special gardening and canning competition, made exhibits at the county fair. Through his efforts, Mr. Whyte has gained much valuable experience, which he will be only too willing to place at the disposal of others who might like to follow his example. His own untiring efforts in this, as well as in many other directions, cannot be too highly commended.

## A National Campaign

The Canada Food Board has organized a Dominion-wide vacant lot and home garden cultivation movement which will be known as the Vacant Lot and Home Garden Section, with Mr. Fred Abraham as its chairman. Mr. Abraham was chairman of the Vacant Lots Commission in Montreal, where it is estimated produce exceeding \$500,000 in value was grown last summer. Mr. Abraham writes The Canadian Horticulturist that it will be the object of the new organization to create organizations for greater production in those fields where these do not exist, and to strengthen the work of those organizations already at work. It is not the purpose of the Board to interfere with any existing organization, either provincial or local, but to put behind their efforts the strength of the Canada Food Board by means of publicity and education. In this connection they purpose using the press, clergy, moving pictures, and other agencies. The mayors of all municipalities have been written to and asked for their cooperation. Through the Minister of Education in each province an effort will be made to interest the school children. Only the growth of vegetables high in food value will be encouraged, such as potatoes, beans, beets, peas, carrots, lettuce, onions and parsnips. In the case of home gardens importance will be attached to the growing of vegetables, instead of flowers.



This handsome silver medal was awarded to the Hamilton Horticultural Society in 1862, by the Royal Horticultural Society of London, Eng. Note article on this page.

## An Old Society

Officers of the Hamilton Horticultural Society would like to know if there is a society in the province that has been in continual existence and which dates back farther than theirs. While the date of its organization is not known, records discovered recently show that it was in active existence in 1850. In The Hamilton Gazette, published in 1850, appears an advertisement calling a meeting of the society. It is said that in those days the shows were affairs of importance and largely attended, being of high merit. Let us hear from some of the other older societies. In 1862 the society was awarded a silver medal by the Royal Society of London, England, for excellence of products. It still has this medal, a reproduction of which appears on this page.

In an issue of The Hamilton Times of June, 1867, appears an announcement of a mid-summer exhibition of the society, which was to be held in the drill shed, afternoon and evening, and "which would be one of the grandest attractions of the day." The Secretary of the Hamilton Society suggests that it would be interesting if other societies would hunt up their records for information of this character.

## Ontario Rose Society

The annual meeting of the Rose Society of Ontario was held recently in Toronto. The president, Mrs. Graham Adam, occupied the chair. With her were the secretary, Miss Armour, and the treasurer, Mrs. Aikens. The society reported a membership of 417, as compared with 280 at the end of last year, an increase of nearly 80 per cent. The revenue for the year was \$1,166, and disbursements \$956, leaving a balance of \$210. In addition to meeting all expenses, the society donated over \$200 to the Society for the Welfare of the Blind.

The prizes won at the 1917 Rose Show were awarded, one of the successful competitors being Mrs. Adam, who carried off a beautiful silver cup presented by Mrs. Lyon. Miss Armour was made a life member.

An address, accompanied by colored lantern slides, was given by Mr. H. J. Moore, in charge of Queen Victoria Park at Niagara Falls, Ont.



## Ontario Fruit Growers Make Important Decisions

Favor Standard Sizes for Baskets, Boxes and Barrels—Will Employ National Service Girls—Some Talk of Importing Chinese Labor—Prospects for Fruit

THE problems facing Ontario fruit growers were discussed for two days at the annual convention of the Ontario Fruit Growers' Association, held in Toronto, February 14th and 15th. The two most important matters dealt with were the basis of payment to be allowed the National Service Girls this year. On this an agreement was reached with the representatives of the girls that was declared to be satisfactory to both parties concerned. It was decided also to recommend obtaining legislation setting standard sizes for baskets, boxes and barrels used in the handling of fruit. For baskets the present six-quart size and an eleven-quart basket six inches deep were favored. The western or Oregon apple box, which is also the American apple box, was approved instead of the present Canadian standard. For barrels, the American size, which is smaller than the size which has been in use in Ontario, was endorsed. It holds about three bushels, or a little over 7,000 cubic inches. Its size has been set by the United States Government, and its adoption in Canada has been approved by the Nova Scotia Fruit Growers. If the Dominion Government approves of the proposed standards for boxes and barrels and enacts legislation to that effect, it will give a uniform size of box and barrel for the continent.

### President's Address.

President F. A. J. Sheppard, of St. Catharines, pointed out that the year 1917 had proved a difficult one for most fruit growers. Owing to the war, all kinds of supplies and materials had greatly advanced in price, many of them to double and treble the prices for which they were originally sold. Transportation facilities had become demoralized. These conditions, with the scarcity and high cost of labor, had resulted in the fruit grower being hit more heavily, probably, than any other class in the community. In addition, weather conditions had proved unfavorable. The tomato crop in the Niagara district was a failure, the grape crop a light one, and the berry crop not over 50% of an average. Nevertheless, fruit growers recognized the needs of the situation, and while it might not be possible for them to greatly increase production in 1918, he believed they were preparing and ready to do their best to do so.

### Financial Statement.

The financial statement presented by the Secretary-Treasurer, P. W. Hodgetts, showed total receipts of \$2,583.68, including a government grant of \$1,700.00, members' fees of \$333.90, and a balance on hand from 1916 of \$480.87. The expenditures amounted to \$1,233.07, leaving a balance on hand of \$1,350.50. The heaviest item of expenditure was one of \$519.63 to the special transportation agent of the association.

### Officers Elected.

The election of officers resulted as follows: Pres., R. W. Grierson, Oshawa; vice-pres., J. R. Hastings, Winona; sec.-treas., P. W. Hodgetts, Toronto; executive—F. A. J. Sheppard, St. Catharines; W. F. Fisher, Burlington; directors—R. B. Whyte, Ottawa; E. Casselman, Iroquois; Howard Leavens, Bloomfield; J. G. Wait, Colborne; Chas. Howard, Hagersville; Thos. Rowley, Leamington; A. Stephenson, Longwood; J. C. Harris, Ingersoll; W. Mitchell, Clarksburg.

### Historical Committee.

The report of the Historical Committee, which had been prepared and was presented

by Mr. A. W. Peart, of Burlington, the other member of the committee being Mr. W. T. Macoun, Dominion Horticulturist, Ottawa, dealt with the unfavorable conditions which affected the fruit industry last year, causing the apple crop to be probably the lightest in

## Promote Good Work

All over Canada organizations are springing into existence to promote increased production by means of backyard and vacant lot gardening. Help along the good work by promoting the circulation of the Floral Edition of The Canadian Horticulturist among the members of these organizations. Write us for our special low rates.

Many fruit growers' associations would be profited by subscribing for the Fruit Edition of The Canadian Horticulturist for all their members. Look over this edition and see if it is not a particularly good one.

Note our low subscription offer: One year 50 cts., 3 years \$1.00, 3 new subscriptions \$1.00. Can you beat it?

THE CANADIAN HORTICULTURIST  
Peterboro, Ont.

twenty-five years. Mention was made of the poor crops fruit growers had harvested for three years, and of the trying conditions farmers and fruit growers have been placed in owing to their inability to compete against urban industries. Mr. Wm. Armstrong, of Niagara-on-the-Lake, had furnished the committee with information on the peach industry in the Niagara district, showing it to be well over 100 years old. Mr. Armstrong had in his possession a diary made by the late Jas. Durban, of the Niagara River Road, near Queenston. It is dated March 29, 1850, and showed that he planted peach trees to renew an old peach orchard planted by his father. The father, who died in 1835, told his neighbor, Thos. Vrooman, that he planted the first peach orchard in the Niagara Township about the year 1814. It contained around 500 trees. The Historical Committee invites fruit growers to furnish interesting information of this character for preservation for historical purposes.

Mr. Peart recommended that the names of members, or sons of members, who had enlisted, should be recorded in the report of the association. The suggestion was adopted. Three lists of names will be included in the honor roll: those who enlisted, those who have died, and women who have served as nurses. Members of the association are requested to send names for the roll to Secretary P. W. Hodgetts.

### New Fruits.

Mr. W. T. Macoun, Dominion Horticulturist, of the Ottawa Experimental Farm, reported that Red June, a new early apple tested by him, had proved a good shipper. Stayman Wine Sap, a "sport" of the original Winesap, is larger and better than the original apple of the name. Melba and Joyce, seedlings of the McIntosh, come in August and September respectively, and are both good apples. Omaha and Emerald, new plums created by hybridizing Burbank and Wolfe, are both excellent. The first named,

a red plum, comes in August, and the latter, a red and yellow, in September. Portia and Oleria are two promising new varieties in strawberries.

### The Car Situation.

A frank review of the car situation was given by G. E. McIntosh, transportation agent of the Fruit Division, Ottawa. One statement he made was that if every suitable car was pressed into service the railways could not move the pulp wood alone that is awaiting shipment, some of which has been piled for three years. There are 21,000 cars belonging to Canadian railways in the service of American railways, while only 8,000 foreign cars are on Canadian tracks. The C.P.R. has over 300 potato cars in the New England States, which it could not get back, and there is danger of many car loads of potatoes remaining unmarketed in the Maritime Provinces. A more extended reference to this report will be given.

### Spraying Results.

One of the best addresses was given by Prof. L. Caesar, Provincial Entomologist, O.A.C., Guelph. This address is published practically in full on page 51 of this issue.

### Work of the Food Controller.

Two addresses bearing on different aspects of the work of the Food Controller were given, one by Mr. D. Johnson, Dominion Fruit Commissioner, an outline of which is published in this issue, and the second by Mr. J. R. Hastings, chairman of the Fruit and Vegetable Committee. Mr. Hastings expressed the belief that the system of licensing all handlers of food products has come to stay. This system will enable the Food Controller to promptly make effective any regulation he may deem it advisable to enact affecting prices and the handlers of food products, and it will be a powerful weapon in dealing with any abuses that may be attempted by the licensees. This system means that the day of the so-called profiteer has passed, as well as of the food speculator. Excessive profits will not be permitted. While maximum profits may be set, nothing will be done to prevent a licensee laying in at any time a sufficient supply of any food product that may be necessary to cover his normal requirements during the usual season of distribution.

### Finding an Outlet.

Mr. F. C. Hart, Director of the Markets Branch of the Ontario Department of Agriculture, suggested that in the event of there being a large crop of inferior apples this year, efforts should be made to have as many as possible of them marketed through the canning factories, evaporator plants and similar agencies. Ontario has about 100 canning plants, 150 evaporators and 50 cider mills. A good deal could be done in the making of apple jelly and by handling apples in other semi-manufactured forms. Action of this kind seems necessary, as it is possible that Ontario will have a fairly large crop of comparatively poor fruit this year. This is because most of the apple crop in Ontario is produced in the farm orchards, many of which are likely to be neglected. For the sake of the fruit interests it is necessary that the co-operative associations shall be maintained at the fullest possible strength, as they are composed for the most part of the best fruit growers of the province.

Dr. A. J. Grant, of Thedford, spoke on the effect of the war on the farm apple orchards. Lengthy extracts from this address will be published in The Canadian Horticulturist. An excellent address on strawberry growing was given by Howard Leavens, of Bloomfield. This will appear in our April issue.

### National Service Girls.

The longest discussion of the convention



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took place in reference to the employment of the National Service Girls. It was led by Dr. W. Riddell, Superintendent of the Trades and Labor Branch of the Provincial Government, and by Miss Harvey, one of his associates, who spoke for the girls and on behalf of the Government. A report of this discussion is published elsewhere in this issue. A pleasing feature of the discussion was the great credit given the girls by a number of the growers for the splendid work they accomplished last year.

### Standard Packages.

The discussion on standard size for baskets, boxes and barrels was led by Mr. P. J. Carey, of the Dominion Fruit Division. Reference to this is published on another page.

### The Outlook for Fruit.

Short addresses were given by several speakers dealing with the outlook for different varieties of fruit in 1918. Mr. F. G. Stewart, of St. Catharines, warned against the planting of any more commercial vineyards until conditions resulting from the Dominion prohibition legislation have become more settled. It will be necessary to find a market for the large quantities of grapes that have been consumed in the wine industry.

Prospects for small fruits were dealt with by Leonard Harrison, of Waterford, who believed that prices this year are bound to rule high, as every berry grown will be wanted. Both raspberries and strawberries are likely to be wanted for canning purposes. A further reduction in the acreage of raspberries was anticipated, because the crop of late years has not proved a paying one.

The pear outlook was dealt with by Mr. H. T. Foster, of Burlington, who expressed

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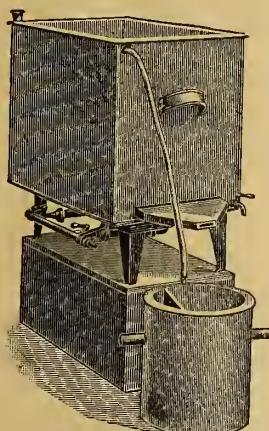
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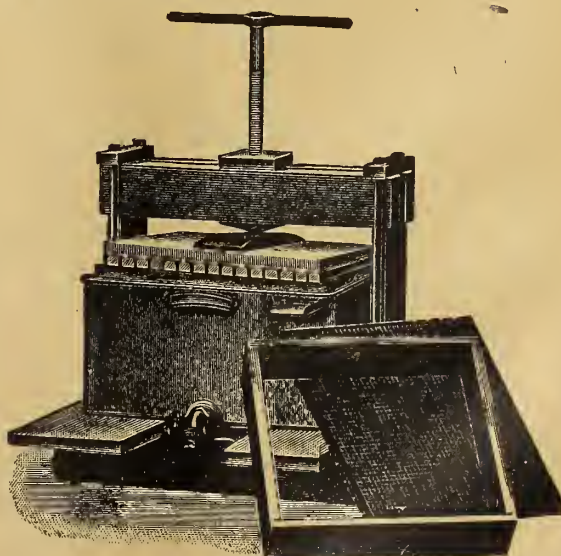
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the belief that there will continue to be a big demand for pears that are well grown and well packed. For this reason, pear growers will be justified in giving their orchards the best possible care.

Mr. W. A. Mitchell, of Port Elgin, considered the outlook none too bright for the cherry growers, in his district at least. Trouble was being experienced with a Shot-hole fungi. It was possible, also, that the cold weather had caused some damage.

Mr. Hamilton Fleming, of Grimsby, said that the showing of peach buds was good, but the organization of the industry was poor and the transportation outlook bad.

### Chinese Labor.

A brief but lively discussion took place in reference to a resolution introduced by A. Onslow and seconded by J. Mussen, requesting the Government to make further investigation of the suggestion of Dr. G. C. Creelman, favoring the importation of Asiatic laborers for the purpose of assisting in the agricultural development of Canada, under the indenture system, for a term of years. The resolutions committee had differed on this resolution and had referred it back to the convention. Mr. Mussen believed that the attitude towards farming of laborers had become so hostile it was necessary for fruit growers to take some action to obtain more labor. He had visited China and did not know of any place where farming was carried on in a more intelligent and methodical way. If the Chinese were all right for Java and Ceylon, where they have proved very useful, he did not see why they should not in this country.

Mr. F. Palmer, of the Vineland Experimental Station, pointed out that the California Fruit Growers' Association is asking the United States Government to provide Asiatic or other labor immediately, and that the British Columbia Fruit Growers' Association has taken a similar stand. He had lived in British Columbia, where Chinese laborers had worked on his place for years and had proved themselves adapted to fruit and vegetable growing. Objection to the resolution was expressed by Mr. Patterson, Dr. Grant and by Mr. R. B. Whyte, on the usual grounds. Mr. Whyte pointed out that the National Service girls would not care to work among Chinamen. The motion was voted down.

### Resolutions Passed.

Resolutions were adopted pledging the

support of the fruit growers for the prosecution of the war, commending the Dominion Minister of Agriculture upon having appointed a traffic expert in connection with the Dominion Fruit Division, requesting the Dominion Government to enquire into the possibility of assisting in the conservation of fruit, either by assisting or organizing the evaporating industry or in the further development of the jam and canning industry; thanking the National Service girls for their assistance last year; requesting the Government to reduce the duty from all spraying machinery, and thanking the Department of Education for having allowed high school boys and girls to leave school last spring to work on farms, and requesting that this year they be allowed to continue at work until October 1st.

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## Ontario Vegetable Growers Favor Co-operation

THE two most important subjects discussed at the annual convention of the Ontario Vegetable Growers' Association, held in Toronto on February 15th, were, first: the need of some cooperative organization to assist in the marketing of garden

produce, and second: the value of Northern grown potatoes for seed. In the matter of marketing it was shown that the market gardeners of Ontario are badly disorganized. They have no way of knowing the probable supply of vegetables on any particular market with the result that while certain markets may be glutted with one variety of vegetable, other markets may be offering good prices for such vegetables. There is great need for some central bureau of market information. In the matter of Northern grown potato seed the delegates were agreed that immature seed potatoes would increase the potato yield over that from home grown seed out of all proportion to the difference in the cost including freight.

### President's Address.

President J. J. Davis, of London, announced the recently formulated policy of the Ontario Department of Agriculture in arranging for the growing of seed potatoes in Northern Ontario. This service on the part of the Department will be of great assistance to the potato growers of Ontario, as the use of immature seed should double the average potato yield per acre. Mr. Davis pointed out that it is important to get seed from fields that have not been diseased. In his judging work last summer he found that potatoes in some parts of New Ontario were affected with blackleg.

### Value of Greenhouses.

"There is a feeling," said Mr. Davis, "that greenhouse products are luxuries and that greenhouses should be closed until after the war." "I am unable to define a luxury," he continued, "and have not met anyone who could. If luxuries mean anything and every-

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thing that the people could squeeze along without, we would ban, besides greenhouse products, products of biscuit factories, cereal factories, candies, tea, coffee, chocolate, cocoa, musical instruments, jewelry and a host of other things. The result would be a nation of dyspeptics and anaemics, with an army of people thrown out of their usual work who could not be absorbed by other industries."

Mr. Davis pointed out that greenhouses in connection with vegetable growing should be kept going for four reasons. (1) Greenhouse vegetables have a dietetic value far above their cost in adding succulence to our rations. As tonics they are far superior to drugs and much cheaper. (2) Greenhouses enable market gardeners to employ their help at productive work all the year. (3) The demand for greenhouse produce in Canada is even now not being met by Canadian growers. (4) Outdoor vegetable crops are advanced by getting plants started inside. The place of the greenhouse cannot be taken by hotbeds on account of a scarcity of sash.

At the conclusion of the president's address a resolution, moved by F. F. Reeves, of Humber Bay, was passed, asking that the Government refrain from interfering with the greenhouse business as far as vegetables were concerned.

A movement was reported to be on foot within the City Council of Toronto that farmers and vegetable growers be required to pay a license for the privilege of selling their products within the city. Vegetable growers considered this step ill-advised on the part of the city and passed a resolution protesting against restrictions being placed in the way of the free sale of produce and urging that it is in the best interests of the city, as well as of the country at large that the free delivery of foodstuffs, especially during war time, should be facilitated.

### Northern Potato Seed.

The president's reference to the value of immature potato seed created considerable discussion. Mr. W. T. Macoun, Dominion Horticulturist, stated that last summer at Ottawa they harvested 400 bushels of potatoes an acre from seed brought from Port Arthur, while a similar plot sown to seed grown at Ottawa for a number of years yielded but 85 bushels an acre. "Potatoes grown for a number of years in our warmer climate," said Mr. Macoun, "become infected with mosaic disease and so become yearly less fit for seed. I am convinced that the

use of seed from some of the cooler districts would double the average potato yield of Ontario."

Mr. H. Broughton, one of the Sarnia district potato growers, stated that they have found great advantage in using Northern grown seed. The large growers of early potatoes in Southwestern Ontario have given up the growing of their own seed potatoes. Mr. Broughton pointed out that good fertility of soil and freedom from weeds were as necessary in growing potatoes as good seed.

The Ontario Department of Agriculture will not be able to supply much seed for this year's planting, but they are in touch with New Brunswick growers who will be able to supply seed.

### Secretary's Report.

The past year was a fairly successful one for vegetable growers, according to the report of J. Lockie Wilson, secretary-treasurer. Intensive operations under glass had in many instances to be discontinued on account of the high price of coal. The labor problem was also a serious obstacle. The crops entered in the garden competitions were on the whole above the average and the exhibits at the fall fairs never surpassed. A balance of \$880.53 was shown in the treasury.

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S. C. Johnson, B.S.A., gave a brief report of the experiments carried on during the year by the vegetable specialist. He referred to the rapid spread of onion blight throughout Ontario. So far no good preventive has been found for this disease.


"There are not one per cent. of the vegetable growers of Ontario who can give any definite data as to the cost of producing a given area of crop," said Mr. F. F. Reeves, of Humber Bay, who has during the past year been carrying on a survey of the vegetable industry. The survey has not yet been completed, but from the 760 commercial gardens already visited, Mr. Reeves was able to make certain recommendations. "Growers," said Mr. Reeves, "should keep records of the cost of their operations and also of their returns from each crop, so that they will know which are the profitable crops." There are certain districts throughout Ontario where one or more vegetables are well located climatically and otherwise. In such districts a number of farmers should grow the same crops. In this way the district


would become known as a producer of that crop. A saving would also be effected in machinery and in buying supplies. This, however, does not apply to producers living near large cities. Mr. Reeves also advised vegetable growers to make greater use of the scientific information supplied by the Government experts.

Paris green will probably be a scarce article next season, according to Prof. L. Caesar. It will likely cost 60 to 75 cents a pound. Paris green is the quickest killing of common insecticides, but is inclined to burn the foliage unless used with Bordeaux mixture. Arsenate of lead in the paste form, which is one-third as strong as Paris green, will cost 20 to 25 cents a pound, and in the powder form, which is twice as strong as the paste, about 40 to 48 cents. This will stick to foliage better than Paris green and will not burn. A mixture of two pounds of the paste arsenate of lead and one pound Paris green in 40 gallons of water will fix the potato beetle. This will give the quick killing action of the Paris green plus the sticking quality of the lead.

#### Vegetable Consuming Campaign.

A telegram was received from the Food Controller asking the endorsement of the vegetable growers in a campaign to increase the consumption of onions and carrots, of which vegetable there are considerable surpluses on hand in certain districts. Mr. E. K. Purdy, of Cataraqui, pointed out the need of some central information bureau to show where supplies of vegetables may be obtained. While there are large supplies of onions in some sections of Ontario, other sections cannot fill their orders. Mr. Purdy recommended that local secretaries take a survey of the vegetable crops and send this in to



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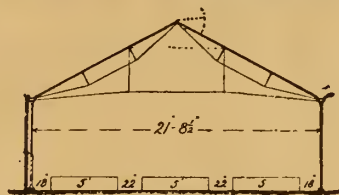
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J. Lockie Wilson, so that buyers will be able to locate supplies.

Mr. J. R. Hastings, of Winona, president of the Fruit and Vegetables' Committee, of the Food Controller's Office, spoke in favor of the recommendation in the telegram. He made the announcement that the British Government cannot take any more dried vegetables, so that we will have to prepare to absorb our crops in Canada. A resolution moved by G. B. Hellerman, of Waterford, was carried, endorsing the greater consumption of onions and carrots so that they may replace foods which may be exported.

Douglas Maynard, of Leamington, recommended the use of 20 tons of manure an acre, applied the year before ground was to be seeded to potatoes. In experiments which he carried on with commercial fertilizers, it required an application of from 600 to 1,000 lbs. an acre, to make it a paying proposition. With the latter application, he found that he was not only paid in the increased yield but in the earlier maturity. One of the secrets of successful potato culture, according to Mr. Maynard, is constant cultivation. His crop is harrowed several times before the potatoes are far enough up to admit of cultivation.

### Tomatoes Under Glass.

"With tomatoes under glass the most important thing is to get the first two branches to set fruit," said Mr. J. J. Davis, of London. To do this the blossoms must be pollinized by hand. Mr. Davis, after trying out the rabbit's fur method has come to the conclusion that pollinization by the use of a spoon is the quickest and surest method. For brown spot of tomatoes he recommended sulphur. Great care must be used to prevent burning the foliage. A method recommended by Mr. Davis was that the attendant should carry around a shovelful of coal and drop on a little sulphur from time to time.

### Cooperation Urged.

W. R. Dewar, of Leamington, dealt with the cooperative shipping of tomatoes. The Erie Company, of which he is manager, has met success through cooperative marketing. They ship tomatoes the year round. The cooperative takes 10 per cent. of sales to cover cost of handling and at the end of the year all surplus over the actual expenses of management is returned pro rata to the growers. This amounted the past season to \$10,000, the cost of marketing, including executive's salaries, amounting to but 4 per cent. of sales—considerably better than the 10 per cent. charged by commission men for careless service.

Some of the advantages of cooperative shipping are that it enables the grower to give all his attention to growing, greater uniformity is obtained in the marketable article; it is easier to keep in touch with the markets (the manager can have prices telegraphed him daily), distribution is better controlled; shipping charges come lower when carlots are used; a cooperative company is able to make more f.o.b. shipments, which according to charts shown by Mr. Dewar, are much the more profitable; and a cooperative company is able to market surplus goods in canning factories to advantage.

The growing of cauliflower was the subject of an interesting address by Chas. Syer, of Bartonville, who has had great success in this work. A review of the address of Mr. Syer, as well as that of V. Robinet, on the cultivation of melons will be given in the columns of The Canadian Horticulturist.

### Organization Needed.

George Rush, of Humber Bay, pointed out the lack of organization on the part of the



vegetable growers of Ontario, particularly in marketing, as a result of which one market is glutted with vegetables and another starved. He suggested the formation of district organizations similar to the farmers' clubs, and a central market bureau to keep the locals informed as to the state of markets. "Organization," concluded Mr. Rush, "is imperative if we are to stay in the business."

On a motion of J. Lockie Wilson, a committee composed of J. G. Davis, Geo. Rush, F. F. Reeves, F. B. Housser, H. Broughton, T. Delworth, and G. B. Hellerman, was appointed to work up a scheme for the cooperation of vegetable growers, and to submit this

at the next annual meeting when action will likely be taken.

A resolution was passed favoring the removal of the duty from commercial fertilizers.

An account of the experiments in vegetable growing which are being carried on at the Vineland Experiment Station, was given by O. J. Robb. This account showed again the value of Northern grown potato seed. It will be given in greater detail elsewhere in *The Canadian Horticulturist*.

The evening session was addressed by W. T. Macoun, who spoke on the benefits of garden competitions and outlined the procedure followed in Ottawa last year. A well illustrated lecture by L. G. Schermerhorn, of New Brunswick, N. J., showing some of the better gardens of New Jersey, was appreciated. The evening session was brought to a close with the exhibition of motion pictures dealing with vegetable growing.

#### Election of Officers.

The following officers were elected for 1918: President, J. J. Davis, London; 1st Vice-President, E. K. Purdy, Cataraqui; 2nd Vice-President, M. May, Tecumseh; Secretary-Treasurer, J. Lockie Wilson, Toronto; Executive: J. J. Davis, London; E. K. Purdy, Cataraqui; Maurice May, Tecumseh; J. Lockie Wilson, Toronto; F. F. Reeves, Humber Bay; Thos. Delworth, Weston; Directors: C. Guthrie, Stratford; H. L. Baillie, Billing's Bridge; E. E. Smith, Ealing; J. H. Modeland, Sarnia; W. S. Eborall, Beamsville; E. K. Purdy, Kingston; Maurice May, Tecumseh; T. K. Aymer, Humber Bay; Jas. Dandridge, Humber Bay; Wm. Guthrie, Sarnia; J. W. Smith, Sarnia; A. Nelson, Font-hill. Auditor, D. H. McLennan, Toronto; representative to C. N. E., Jas. Dandridge, Humber Bay, and to the C. C. E., J. J. Davis and I. H. Farquharson, Aylmer, Que.



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# POULTRY YARD

## Back-Yard Poultry

Raising small back-yard flocks of chickens on table and kitchen scraps to produce the family's eggs and part of its meat supply is a solution of one of the problems of the high cost of living. Even as few as six or eight hens should produce eggs enough, where used economically, for a family of four to five persons throughout the year except during the moulting period of the fall and winter. By the preservation in water-glass of surplus eggs produced during the spring and early summer, even this period of scarcity can be provided for. The use of scraps in feeding will keep the cost of maintenance relatively low, since only a small quantity of supplemental feed will be necessary.

There is no necessity for the back-yard poultry flock to become a nuisance to neighbors. If the house and yards are kept reasonably clean there will be no annoying odors. The noise made by male birds can best be eliminated by the elimination of the male bird. The fact that there is no male in the flock will have absolutely no effect on the number of eggs laid by the hens.

### General Purpose Breed Best.

One of the general purpose breeds, such as Plymouth Rock, Wyandotte, Rhode Island Red, or Orpington, is preferable to the smaller breeds, such as Leghorns, if the flock is to contribute to the family meat supply as well as to furnish eggs. If the production of eggs is the principal aim of the poultry farmer, however, it will pay to keep one of the egg breeds, since they eat less than the larger fowls.

### Piano Box Makes a Good House.

The housing facilities of the back lot need not be elaborate, and may, in fact, be constructed from large packing cases or piano boxes. A floor space of from 3 to 4 square feet per bird is ample in the houses. The yard space should be from 20 to 30 square feet per bird. The back-yard poultryman should take care in feeding table and kitchen scraps not to make use of decomposed waste material or moldy bread or cake, as such food may be seriously harmful to the fowls.

## Prepare for Hatching

Look over the breeders; stock which was healthy last fall, if it has been kept in well ventilated houses and fed right since, should be healthy now; but in case any have lost their vitality weed them out and don't, for any reason, let them into the breeding pen.

Where accommodations are such that early chicks can be looked after, hatch some out this month. The cockerels will do for early broilers and the pullets will come in for early eggs in the fall. For the average person this month is too early to hatch chicks, but it is the month to see that everything is ready for mating the breeding pens.

If possible, arrange to have a breeding pen made up of the best year-old-hens. Give them the pleasantest pen and do not include

any hens of weak constitution. Aim to use nothing but your very best birds, as it is only from these that the highest results can be obtained.

### Selecting the Breeders.

The male to head the flock should be from a high producer. If possible, make sure that his sisters are showing their ability to lay. Not only should his pedigree be right, but he should show vigor in every move. A bird of this description will show a fairly broad head with a rather short stout beak, a bold piercing eye, a skin that is soft and velvety to the touch, shanks with fine scales, and showing a certain amount of red pigment down the outer sides.

His mates should be vigorous females that have shown by egg production what they can do. If trap nests are not used—and they are not in most cases—band those pullets that start to lay first and select the breeding pens from them.

The ideal mating is a well developed cockerel of the foregoing description, mated to young hens, but if enough hens of the desirable type are not available, do not hesitate to use pullets. So long as they are well matured and vigorous, they will give the best of results.

Be sure that all layers, and especially those in the breeding pen, have plenty of green food—roots, vegetables or sprouted grain are very good. Open up the windows on fine days and keep the birds busy by feeding grain in heavy, clean litter.

## Incubator Suggestions

The incubator should be thoroughly cleansed and disinfected before operations begin.

See that the machine sits level and solid. Test the thermometer for accurate readings.

Always adjust the machine for two or three days before the eggs are put in.

Thorough ventilation of the incubator room is essential to the proper development of the embryo.

A small hand flash light is useful for reading temperatures.

The eggs should not be disturbed for the first two or three days.

Always turn and cool the eggs before tending to the lamp.

Operate the machine according to the directions of the manufacturer.

The length of time eggs should be cooled depends upon the temperature of the room and the period of incubation. Cool a few minutes at the beginning and gradually increase the time as the hatch progresses.

Test the eggs on the seventh day and again on the fifteenth day.

Boil the infertile eggs for chick feed.

Do not disturb the eggs after the eighth day.

Handle the moisture problem according to the manufacturer's directions.

Never help chicks out of the shell; there is no profit in such a plan.

After the hatch is complete, allow the chicks to remain in the machine for at least twenty-four hours.

Thoroughly clean and adjust the incubator before putting in another setting of eggs.



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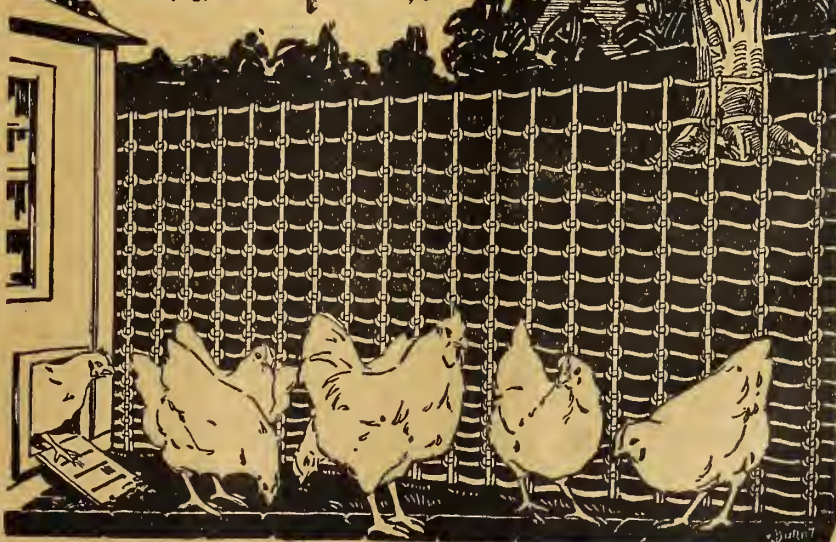
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## Advantages of the Leno Basket

Editor, The Canadian Horticulturist: I noticed an article in your February issue, by Wm. Armstrong, of Niagara-on-the-Lake, on leno top baskets being a popular fruit package. I agree with him, although I am in the district he mentions as trying to knock it out. It is an attractive package, and appeals to the consumer. For one thing, he can readily see the whole fruit of top layer, and by tilting the basket to one side can get a pretty good idea of the quality of the fruit throughout the package. It is not so with the flat-top, as he can only see the centre row when packed with peaches, and I am sorry to say that the tendency is, in a good many cases, to put the best looking peaches, smoothest and rosier, in that centre row. The majority of packers will do this without instructions, as they like to make their work look attractive.

I have customers who tell me that they can sell 25 to 50 per cent. more fruit in the lenos than in the flat top, and also get a much better price. Is not that what the fruit growers need, greater consumption of fruit, and a fair return for their investment, cultivation, fertilizing, spraying, pruning and many other expenses? The basket bill is a heavy one, and the leno top cuts this considerably, as we sell a greater proportion of fruit to the basket. The fruit grower needs a better return for his goods, for we have been hard hit. Of late our expenses have increased, in many cases, over 100 per cent.

I ship my entire crop, via. express and freight, in protected lenos, my customers are very pleased with them, and I find that I have much better returns for the same quantity and quality of fruit. To do away with the leno top will work a disadvantage on the fruit grower.—T. E. McCollum, Winona, Ont.

## An Amateur's Success

Editor, The Canadian Horticulturist: Last season I kept a careful record of the work done in connection with the cultivation of a small piece of ground for potatoes, and am led to believe, from what I have been told by others, that results obtained were somewhat unusual. I put in 65 lbs. of seed (Early Ohio) in a piece of ground seventy-four feet long by thirty-four feet wide. From this small patch I harvested 1,274½ lbs., or 21 bushels 14½ lbs. of potatoes. Only about 30 lbs. of these potatoes could be classed as small or unsaleable. Some of the people here told me that they never heard of potatoes producing so freely. One man who has grown potatoes nearly all his life has told me that his most successful year only gave him about 17½ bushels to one bushel of seed.

The potato bug gave me some trouble, but the potato borer proved the worst enemy to the plants. It is a grub something like the cut worm. It enters the vegetable stock at the surface of the soil, and bores to the centre, eating the heart of the stem as it goes. I saved a number of stems by slitting them where I thought the borer was, bringing it out through the slit, and closing it again.

I am highly pleased with The Canadian Horticulturist, as are two of my friends, who I induced to subscribe for it last spring. We look eagerly for its appearance each month.—John Taylor, Sydney Mines, Cape Breton, N. S.

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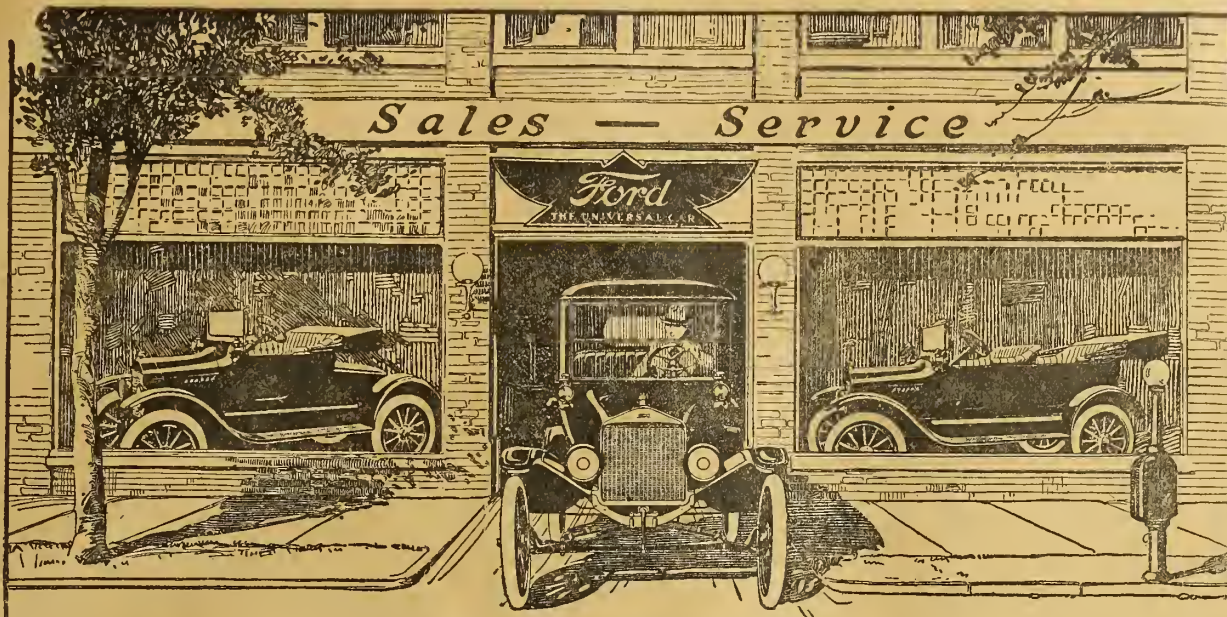
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### Niagara Peninsula Growers Convene

THE tender fruit section of the Niagara district, Ontario, has problems of its own. These were discussed at the annual district conventions of the Niagara Peninsula Fruit Growers' Association, held February 27th and 28th. Afternoon and evening sessions were held at Grimsby on one day, and at St. Catharines on the next. This year, as a means of increasing the membership, attendance was confined to members. Although the past few years have not been very favorable for the Niagara Peninsula growers, evident interest in the meetings was manifest. There was a good attendance of growers. President S. H. Rittenhouse presided at all sessions. He stated that methods of cultivating fruit have improved greatly in the Peninsula during the past ten years, but the marketing end of the business has not advanced to the same extent. He advocated the adoption of a more thorough system of grading and packing.

In addition to local speakers, the meetings were addressed by prominent speakers from the United States. A strictly technical address on the structure of fruit trees and their relation to commercial practices was given by Prof. M. F. Barrus, of Cornell University, at the Grimsby meeting. Mr. J. E. Allis, of Medina, N.Y., a practical fruit grower and a large grower of peaches, spoke both at Grimsby and St. Catharines. At both meetings he dealt with the growing of peaches. An outline of his remarks will be given in a later issue of The Canadian Horticulturist.

Professor C. R. Crosby, of Cornell University, was to have spoken at the St. Catharines meeting, but being unable to attend, his place was taken by Prof. M. D. Leonard, of the Department of Entomology, Cornell, who spoke on the "Peach Tree Borer" and on the "Pear Psylla."

### The Car Situation.

Mr. Geo. E. McIntosh, transportation expert of the Dominion Fruit Division, Ottawa, spoke at both meetings on the car situation. He dealt with a number of the same points that he had discussed at the Ontario Fruit Growers' Association convention a short time before, mention of which is made elsewhere in this issue, but also gave special attention to some of the special problems of the local growers. Great difficulty is being experienced this year by the Niagara district growers in securing manure. Some 500 cars of manure have been ordered but are still undelivered, owing to the traffic difficulties of the railways. Mr. McIntosh is giving this matter attention. As a result of the order-in-council passed recently on the recommendation of the Food Controller, prohibiting the holding of freight cars by consignees beyond time limit of four days, the number of cars idle in one day has been reduced from 300 to 15.

Professor L. Caesar, Provincial Entomologist, addressed both meetings on spraying subjects. He said that if the practice of spraying were entirely neglected for five years, no fruit trees, with the exception of cherries and some pears, would remain alive in the Niagara Peninsula. Excellent results in controlling brown rot in sweet cherries have been accomplished by thorough spraying. More complete reference to Prof. Caesar's remarks, and also a full report of the address given by Mr. P. J. Carey, of Toronto, on "Some Phases in Marketing," will be published later. Mr. Carey announced that a Dominion fruit conference is to be held in Ottawa shortly, as reported elsewhere in this issue. As the view was expressed that the growers were not agreed

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that the proposed new 11-qt. basket, approved by the Ontario Fruit Growers' Association at its recent convention, was best, it was decided to hold a special meeting of the Association on March 8 to investigate this matter further and instruct their delegates in regard thereto.

Mr. E. F. Palmer, Director of the Vineland Experiment Station, spoke at both meetings. At Grimsby he told something of the work being done by the station in the direction of origination and developing new varieties of fruit. Considerable success is being met with in the development of varieties of grapes. Those that are doing best are largely of European extraction. At St. Catharines, Mr. Palmer invited the fruit growers to suggest lines of work they would like to see undertaken at the station. He himself suggested an experiment in pruning peach trees, which he believed might prove an improvement on the system generally followed.

#### The District Representative.

Mr. David Elliott, B.S.A., the District Representative, at the St. Catharines meeting, gave a brief report of a conference of the district representatives with the Government that had been held the day previous. He described the new tractors the Government is arranging to sell in the province for about \$800 each. These, he understood, are good machines and likely to be in great demand. The Government has 100 available. Mr. Elliott pointed out that Lincoln county has only one ditching machine, whereas some other counties have as many as forty. Some 30 miles of underdraining is planned for this one machine this year. He believed more should be employed.

Mr. W. H. Bunting, of St. Catharines, who is a member of the labor section of the Organization of Resources Committee of Ontario, told of a conference of the committee he had attended that week, at which it had been made clear that the world is actually facing famine conditions. It is important that fruit shall be raised to take the place of other food products that must be exported. The Government is using every possible effort to secure labor for the farmer. He urged growers not to be too particular as to the class of help they engaged, and to be willing to make the best of whatever help they can get.

#### Resolutions Adopted.

A number of resolutions were adopted, including the following: 1. Pledging the support of the fruit growers to the Government in the campaign for greater production; approving the Government's effort to secure farm labor and suggesting that the local representative be given extra assistance to enable him the better to supervise the distribution of this labor. 2. Urging the Dominion and Provincial Governments to co-operate with the local committee on advertising in pushing an advertising campaign for fruit.

## The Albert Nurseries

### Albert, New Brunswick

Have a large surplus of the best varieties of STANDARD APPLES, McIntosh, Fameuse, Wealthy, Dudley, Wolf River, Duchess, Stark, Wagener, Baldwin, etc.

Send list for special quotations.



## Fresh Strawberries All Season

Send card to-day for McConnell's 40-page Free Plant catalogue. Tells you about the great Everbearing Strawberries and Raspberries; also standard varieties of Strawberries, Raspberries, Currants, Gooseberries, Grapes, Asparagus, Seed Potatoes, Fruit Trees, Shrubs, Ornamentals, Roses, Etc.

H. L. McCONNELL & SON - Port Burwell, Ontario

## NEPONSET ROOFS

NEPONSET PAROID ROOFING

NEPONSET TWIN SHINGLES

### For Economy and Durability

NEPONSET PAROID ROOFING is a tough felt, thoroughly saturated with asphalt. It has a record of nineteen years of service, in which time it has resisted fires and kept out all kinds of weather with great success.

## NEPONSET Paroid ROOFING

The main points, therefore, about Paroid are its long life, its weather and fire resistance, the fact that it is so easy to lay and so economical to use. Ask your lumber or hardware dealer.

Look for the roll with the Paroid label—there is only one genuine Paroid.



BIRD & SON - Head Office, Hamilton, Ont.

Warehouses: Montreal, Toronto, Winnipeg, Calgary, Edmonton, St. John.

THE LARGEST MANUFACTURERS OF  
ROOFINGS, WALL BOARD AND ROOFING FELTS  
IN CANADA





Butterfly Flower

## Butterfly Flowers

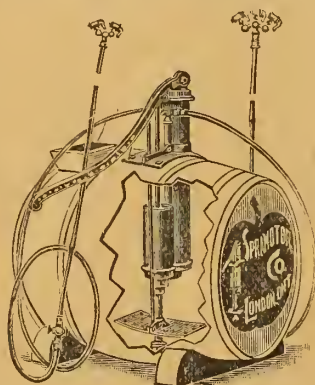
These are the airiest and daintiest flowers imaginable, especially adapted to bordering beds of taller flowers and those of a heavy growth. The seeds germinate quickly and come into bloom in a few weeks from sowing. The florescence is such as to make the plant a veritable pyramid of the most delicate and charming bloom.

### FREE!

One 15c. package will be sent FREE to each person sending us a postcard with name and address. A copy of our new 80 page catalogue will accompany it, from which you can choose your spring requirements.

**DOMINION SEEDS, Limited**  
LONDON - - - - - ONTARIO

Be Sure to say you saw this offer in The Canadian Horticulturist



## Don't Buy a Sprayer

of any kind until you have thoroughly investigated the merits of the Spramotor. They are strongly built, rigidly tested, fully guaranteed and world famous. A few minutes' work with a

# Spramotor

It isn't a SPRAMOTOR unless we made it

at regular intervals, will rid your trees of scale, scab, blight, rot, etc., and insure good yields. We have hand and power Spramotors adapted for every spraying need, from \$7.00 up.

### FREE

Give us some idea of your spraying requirements and we will send you full particulars of a SPRAMOTOR that will do your work to best advantage and at lowest possible cost. We will also send you a valuable illustrated booklet on Diseases affecting fruit trees, vegetables, etc., and how to cure them. Write us at once.

Made in Canada—No Duty to Pay.

**SPRAMOTOR WORKS, 4008 King St., London, Canada**



We have a large stock of all sizes

## FLOWER POTS

FERN OR BULB PANS

1/2 AZALEA POTS  
and Rimless Pans

Orders Filled Promptly.

Send for Prices

**THE FOSTER POTTERY CO., Ltd.**  
HAMILTON, ONT.

**BISHOP BETHUNE COLLEGE**

OSHAWA ONTARIO

Visitors: The Lord Bishop of Toronto.

**A Residential School for Girls.**  
Young Children also received.

Preparation for the University. Art Department, including drawing, painting, wood carving and art needlework. Toronto Conservatory Degree of A.T.C.M. may be taken at the School. Fine, healthful situation. Tennis, basketball, skating, snowshoeing, and other outdoor games.

For terms and particulars apply to the Sister-in-Charge, or to the Sisters, of St. John the Divine, Major Street, Toronto.

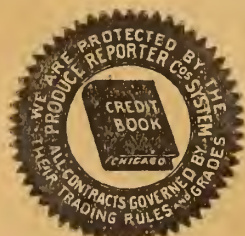
3. Objecting to the railways being allowed to charge freight on ice in bunkers of fruit cars. Cars are frequently held up through the fault of the railways and have to be iced. Fruit growers pay high rates for icing privileges, and therefore should not be charged extra to cover the freight on the ice. 4. Favoring the Vineland Experiment Station being allowed to conduct tests of implements and tools likely to prove useful to fruit growers, and the making of a special appropriation by the Government for this purpose, if necessary. 5. Urging the Provincial Government to designate the main road running between Hamilton and the Niagara River, and which passes through St. Catharines, as a provincial highway, and in the event of the Government not seeing its way clear to construct a road of more permanent nature until after the war, that it at once take over and maintain the present road, as the increase in international traffic, owing largely to reciprocity in motor licenses, has made the burden of taxation for the maintenance of this road too great for the local municipalities. Should the Government take this action, it is believed that it will be possible for the fruit growers to market considerable quantities of fruit by motor trucks. 6. Objection was expressed to the Day Light Saving proposal to advance all clocks one hour during the summer months, on the ground that the early morning hours are not suitable for the picking and handling of fruit while the dew is on it, the afternoon hours being the best.

## Value of Left-over Seed

The critical situation of the seed market, as far as the supply of onion, carrot, beets and sweet corn seed is concerned, makes it desirable that those who have any left-over seed shall use it. Before being used it should be tested.

Prof. T. G. Bunting, of Macdonald College, Que., states that most vegetable seeds are good for three or more years. Parsnip seed is only good for one year; carrot and celery usually one to two years; but tomato, turnip, cucumber and beet seed should be fairly good from five to six years, provided they have not been in an extremely dry or very damp place. The use of old seed, provided it is tested and found good, will result in a saving of money and may mean that someone else will not go short this year.

The Dominion Government, Department of Agriculture, is working on the question of seed supply. Arrangements are being made, in so far as possible, to relieve the seed shortage. In the meantime gardeners ought to do their utmost to eliminate waste in the use of seed.



Branch Warehouses:  
Sudbury, North Bay,  
Cobalt, Cochrane and  
Porcupine.

Send for  
Shipping Stamp

# Fruit and Vegetables Solicited

**We Get You Best Prices**

OUR facilities enable us to realize top prices at all times for your fruit, vegetables or general produce. Aside from our large connection on the Toronto Market, we have established branch warehouses with competent men in charge at Sudbury, North Bay, Cobalt, Cochrane and Porcupine. In time of congestion on the Toronto market we have a ready outlet through these branches. We never have to sacrifice your interests.

**H. PETERS**  
88 Front St. East, Toronto

References: The Canadian Bank of Commerce (Market Branch) and Commercial Agencies.





## Standard Packages Approved

**A**FTER years of discussion, the members of the Ontario Fruit Growers' Association, at their annual convention in Toronto last month, decided to recommend the enactment of legislation by the Dominion Government which will establish standard 6 and 11-qt. baskets, to adopt the American apple box in place of the present Canadian standard box, and to adopt the American apple barrel. The Nova Scotia Fruit Growers' Association had previously approved of the adoption of the American standard barrel as the standard for Canada also. It is understood that the Dominion Minister of Agriculture is favorable to the adoption of these standards, and that legislation to that effect will be enacted at the approaching session of the Dominion House. The matter was brought up for discussion by Mr. P. J. Carey, of the Dominion Fruit Division, Ottawa, who was careful to explain that he did not desire to be the means of railroading through any legislation to which fruit growers might later take exception. He first dealt with the basket situation. A sample of the proposed new 11-qt. basket was submitted for inspection.

### Standard Baskets.

For years there has been a keen discussion as to what baskets are the best. Several different sizes have been in use, and there has been a great lack of uniformity in their shapes, capacity and in the material used in their construction. Mr. Carey pointed this out and stated that it has become generally recognized that the time has come when action should be taken. At a meeting held last year at Grimsby, it was decided almost unanimously to eliminate all baskets except the 6-qt. and the 11-qt. As the fruit growers have endorsed the present 6-qt. basket as all right, there was no need to discuss it further. Mr. Carey made it clear that it will come under the same regulations as other packages as regards the thickness and length of the handle, width of the strip, and every part of its material. It is proposed that the same uniform blocks shall be used by every manufacturer, in order that every basket of both sizes shall be made from the same blocks, so that all the baskets of each size shall be made exactly the same.

### The Standard Box.

The standard Canadian apple box is 10" x 11" x 20", inside measure. Its use is obligatory for the export trade. In British Columbia the growers prefer what is known as the Oregon or Washington box, which is 18½" by 11½" by 10½". It is said to be an easier box to pack, to ship and to have other advantages.

### A Standard Apple Barrel.

For years there has been a great variety of barrels used in the marketing of the Canadian apple crop. The Inspection and Sales Act stipulates that the minimum size of a standard barrel containing 96 quarts shall be 26½", inside measurement between heads, 17" inside measurement head diameter, and 18½" inside measurement middle diameter. In Nova Scotia the barrel in common use has been made from 28½" to 29½" staves, while the barrel in common use in Ontario has been made from 30-inch staves, its average dimensions being, between heads 27½", head diameter 16", middle diameter 19½".

The American barrel holds about three bushels or a little over 7,000 cubic inches. It is a well shaped barrel. The Ontario barrel holds about three bushels and a peck, or a little more.



# BRUCE'S

## REGAL SWEET CORNS

**Golden Bantam**—A very early, hardy, productive variety, and of unequalled quality and flavor; it is a rich orange yellow color.

**Livingston Early Sugar**—An early white variety of large size, and grand quality; sweet as sugar.

**Stowell's Evergreen**—The standard main crop, white variety, very large and of splendid quality and flavor. Prices: each of the above, ¼ lb. 20c; ½ lb. 35c; 1 lb. 65c; postpaid. By express at purchaser's expense, 1 lb. 55c; 5 lbs. \$2.40; 10 lbs. \$3.75.

FREE: Our illustrated 112-page catalogue of Seeds, Plants, Bulbs, Garden Implements, Poultry Supplies, Etc., mailed you on application.  
WORTH ITS WEIGHT IN GOLD.

**John A. Bruce & Co. Ltd.** HAMILTON ONTARIO  
BUSINESS ESTABLISHED SIXTY-EIGHT YEARS

## Paint Without Oil

**Remarkable Discovery That Cuts Down the Cost of Paint Seventy-Five Per Cent.**

A Free Trial Package Is Mailed to Everyone Who Writes.

A. L. Rice, a prominent manufacturer of Adams, N. Y., has discovered a process of making a new kind of paint without the use of oil. He calls it Powderpaint. It comes in the form of a dry powder and all that is required is cold water to make a paint weather proof, fire proof, sanitary and durable for outside or inside painting. It is the cement principle applied to paint. It adheres to any surface, wood, stone or brick, spreads and looks like oil paint and costs about one-fourth as much. Write to Mr. A. L. Rice, Manufacturer, 37M, North Street, Adams, N. Y., and he will send you a free trial package, also color card and full information showing you how you can save a good many dollars. Write to-day.



**Free!**

A 50-gallon barrel of Scalecide free to any one who will suggest a fairer guarantee than that given below.

### "SCALECIDE"

As proof of our confidence and to strengthen yours, we will make the following proposition to any fruit grower of average honesty and veracity: Divide your orchard in half, no matter how large or small. Spray one-half with "SCALECIDE", and the other with Lime-Sulfur for three years, everything else being equal. If at the end of that time, three disinterested fruit growers say that the part sprayed with "SCALECIDE" is not in every way better than that sprayed with Lime-Sulfur, we will return you the money you paid us for the "SCALECIDE".

Send for new free booklet, "Profits in Fall Spraying".

**B. G. Pratt Co., Mfg Chemists**  
50 Church St. Dept. 43 New York

## Business as Usual

### THE ST. CATHARINES COLD STG. & FDG. CO. LIMITED

*The Old Reliable Headquarters for Spray Materials, Pumps and All Fruit Growers' Supplies*

Our supply of Sulphur has arrived, can ship orders same day as received. We sell "Grasselli" Brand Lime-Sulphur Solution and Arsenate of Lead, "Niagara" Soluble Lime-Sulphur, Bluestone, Black Leaf 40, Fertilizers, Baskets, Crates and Berry Boxes, "Friend" and "Gould's" Power Sprayers and the labor-saving "Friend" Spray Gun.

*Order NOW From the Firm that Always Has the Goods On Tap*

**St. Catharines Cold Stg. & Fdg. Co., Ltd.**  
St. Catharines - Ontario





## HAULING BIGGER LOADS

without extra spanning is easily accomplished when you use

### MICA AXLE GREASE

"Use half as much as any other"

Axles are rough and porous, causing friction. The mica flakes fill the pores and the grease keeps them there. Mica Grease prevents locked wheels and hot boxes, gives sure relief for unnecessary strain on horses and harness.

### EUREKA HARNESS OIL

"Lengthens leather life"

replaces the natural oils that dry out of the leather and puts new life in old harness. It penetrates the leather leaving it soft and pliable, and overcomes the worst enemies of harness—water and dirt.

Sold in standard sized packages by live dealers everywhere.

### IMPERIAL OIL LIMITED

BRANCHES IN  
ALL CITIES



KELWAY'S Wholesale REAL PRICE SEED Catalogue for 1918 has been posted to all customers. If you have not received a copy, please send a card and one will be sent you by return of post.

KELWAY & SON

Wholesale Seed Growers.

LANGPORT. SOMERSET. ENGLAND.

## SANDER & SONS ORCHID GROWERS

The Finest Stock in the World

Catalogue on Application

ST. ALBANS - ENGLAND

## Fruit Growers and Girls Agree

**A**N agreement covering the terms and conditions under which the National Service girls will assist the fruit growers of the Niagara District during the approaching season was reached last month between the growers and representatives of the girls during a discussion of this matter, held at one of the sessions of the annual convention of the Ontario Fruit Growers' Association. Negotiations between representatives of the growers and of the girls had been conducted for some weeks previous thereto. For a time it looked as though there would be a deadlock and that it would be difficult to recruit any considerable number of girls this season. Last year quite a number of the girls failed to meet their expenses, and many barely did so, having little left for themselves at the close of the season after their expenses had been paid. This was more especially the case with those girls whose travelling expenses were high, owing to their living a considerable distance from the fruit district. Over 50% of the girls who worked last season earned an average of \$5.00 a week or less, 24% earned \$6.00, and 12% \$7.00. Thus 87% of the girls earned \$7.00 a week or less, out of which they had to meet their expenses. Of those who earned more than this, 4.25% earned \$8.00, 2.25% earned \$9.00, 2.25% earned \$10.00, 1.75% earned \$11.00, and 1.75% earned \$12.00.

One cause of complaint among the girls last year was that they lost considerable time owing to unfavorable weather, waiting for crops to ripen, and for other similar causes. It was realized, therefore, that if any considerable number of girls were to be engaged this year it was necessary that they should be guaranteed a minimum of \$6.00 a week while picking small fruits, and \$9.00 a week while picking the larger fruits. The girls at first suggested that the working day be one of nine hours, with Saturday a half holiday, but when the growers pointed out that weather conditions and the hours worked by other employees in the Niagara district made it impossible for them to grant this request, the girls withdrew it.

### The New Terms Arranged.

The conditions finally agreed upon are that when working on piece rates each worker shall be guaranteed \$1.00 a day, rain or shine, six days a week. When picking pears, plums, apples, peaches and grapes, they are to be paid at the rate of \$9.00 a week for a ten-hour day. For overtime they will be paid at the rate of 20c an hour. Especially good pickers are to be given 20c an hour.

For hoeing, weeding, and other vegetable work, the girls will be paid 15c an hour for odd hours, or \$9 a week for continuous work.

While the girls will be guaranteed minimum wages as stated, they will work on minimum piece rates. Should they earn more than the minimum, they will be entitled to receive whatever they earn. The minimum piece rates are to be as follows:

Strawberries, 2c a quart.  
Raspberries, 3c a quart.  
Blackberries, 2c a quart.  
Gooseberries, 2c a quart (except for English varieties).  
Black currants, 40c for 18 lbs. (11-qt. basket).  
Cherries, 20c for 15 lbs. (11-qt. basket).  
Red currants, 20c for 11-qt. basket.

If the majority of the girls picking in a patch do not earn at the rate of 15c an hour, they will be put on hour rates at 15c an hour.

## A War-Garden for \$1

½ lb. Wax or Butter Beans.  
1 oz. Detroit Dark Red Beet.  
1 pkt. Danish Ballhead Cabbage.  
½ oz. Chantenay Carrot.  
1 pkt. Long Green Cucumber.  
1 pkt. Grand Rapids Lettuce.  
½ oz. Danvers Yellow Globe Onion.  
1 pkt. Hollow Crown Parsnip.  
½ lb. Gradus Peas.  
1 pkt. White Tip Radish.  
1 pkt. Hubbard Squash.  
1 pkt. Alacritty Tomato (the New Early Tomato).

The above collection of Keith's High-grade Garden Seeds will be sent **post-paid** on receipt of \$1.00.

Be sure and ask for a copy of our new 60-page catalogue

## GEO. KEITH & SONS

124 King St. E. TORONTO, ONT.

Say you saw this offer in the Canadian Horticulturist





# To City, Town and Village Dwellers in Ontario

Lloyd George says:

"The line the British Empire is holding must not break anywhere. If it breaks at home it breaks everywhere."

"Canada's sons will have died in vain if **Hunger** compels the Motherland's surrender.

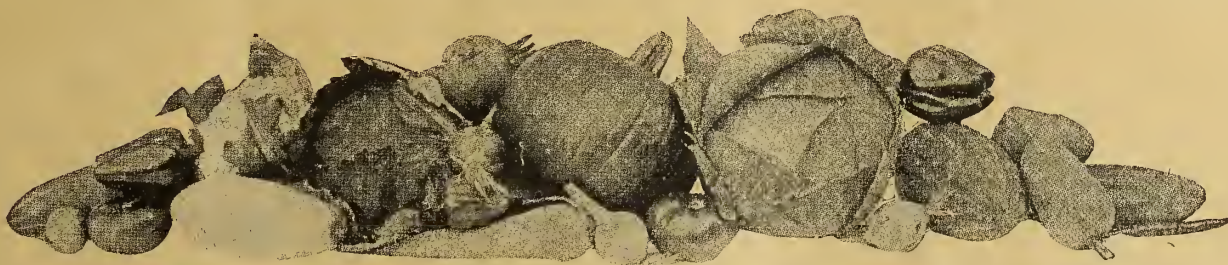
"Our boys and the Allies need **BEEF, BACON, WHEAT and SUGAR.**"

## BECAUSE

1. They are **exported**.
2. They are **highly nutritious**. They build up the broken down tissue and they supply heat and energy very quickly. Surely, when our boys are recalled again and again to fill up the gaps, we should do our part to supply the food that is necessary to refit them.
3. The women over there are accustomed to using these foods. They have no time to experiment with new foods.

**HOW CAN WE HELP TO SAVE THE SITUATION? BY USING PERISHABLE FOODS.**

## A VEGETABLE GARDEN FOR EVERY HOME



1. The farmers must supply the beef, the bacon and the wheat. They have no time or no space left to produce vegetables except those for their own use.

2. The gardeners should be left free to supply the Canning Factories and community; canning centres for Red Cross purposes.

3. A Vegetable Garden in Every Home is a necessity, financially. All canned goods will be exceptionally high for some time to come.

4. A Vegetable Garden saves the Doctor's bill. In the Spring we find ourselves run-down, we require a tonic. This tonic can be supplied through our fresh vegetables. Lettuce, spinach, Swiss chard, asparagus, etc., are great blood purifiers, supplying the necessary minerals, salts, and acids.

5. Carrots, cabbage, parsnips, can be stored in our cellars for winter use when food will be very much scarcer than it is now.

6. Vegetables which cannot be kept in the cellar during the winter can be dried or canned for home use.

7. Dried Peas, Beans and Lentils are very high in nutritive value, containing more tissue building material than our best cuts of beef. There are endless ways of preparing these vegetables and no one need suffer because she has given up the foods required by the Allies.

A little information on the subject of vegetable growing will assist you wonderfully.

Procure your supply of seed early.

Horticultural Societies, Women's Institutes, School Boards, Town Councils, Church Organizations, Y. M. C. A.'s, etc., should cooperate with one another in organizing the work **NOW**. Lecturers will be furnished to address a meeting of school children in the afternoon, and a public meeting in the evening, wherever possible, but it is hoped that local talent will be used to a great extent.

Applications for speakers and literature—

"A Vegetable Garden for Every Home"—

should be addressed to The Department of Agriculture, Toronto, Ont.

**ONTARIO DID WELL IN 1917.**

**LET US DO BETTER FOR 1918.**

Many citizens of urban municipalities will find it impossible to assist directly in the production of food for export. There are few, however, who cannot spare an hour or two each day from their regular work, and this can be of the greatest value if devoted to the production of vegetables.

Those who have land and cannot cultivate it can assist by turning it over to those who have none.

"Whatsoever a man soweth, That shall he also reap."

Plant a garden in 1918, and your harvest will include financial gain, a better diet, better health, assistance to our Empire and through it justice and liberty to the world.

## ONTARIO DEPARTMENT OF AGRICULTURE, TORONTO

**SIR WM. H. HEARST,**  
Minister of Agriculture.

**DR. G. C. CREELMAN,**  
Commissioner of Agriculture.



## CLASSIFIED ADVERTISEMENTS

Advertisements in this department inserted at the rate of 15 cents a line, each line averaging seven words. Part lines count as whole lines, minimum of two lines accepted. Strictly cash in advance.

### BEES

**WANTED.**—Thirty colonies Italian bees in April. Will Staples, 69 Hogarth Ave., Toronto.

**BEES FOR SALE.**—Italians, 50 first class colonies in up-to-date hives. If interested, write for prices, etc., J. Raymond Ball & Sons, Knowlton, Que.

**BEES WANTED.**—Pure bred Italian Bees wanted in 10-frame Langstroth Hives for Spring delivery. Must be free from disease. The Root Canadian House, 73 Jarvis Street, Toronto, Canada.

**FOR SALE.**—Italian bees, strong colonies in Quinby and 8 and 10-frame Langstroth hives, \$10.00, \$12.00 and \$14.00, respectively. Miss M. Gerrie, Ingersoll, Ontario.

**750 COLONIES OF BEES FOR SALE.**—No foul brood. Have been on the job for 30 years. Beuglass Bros., Bright, Oxford Co., Ontario.

**APIARY FOR SALE.**—We will sell twenty-four colonies of Italian and Hybrid bees in McEvoy single walled hives; forty-five supers eight frame drawn out comb; seventeen empty supers, and one two frame 12" x 18" Cowan extractor. All packed for shipment during May. Guaranteed free from disease, f.o.b. Toronto, \$400.00. Weir Bros., 34 Chester Ave., Toronto.

**FOR SALE.**—The Best Golden and Three Band Italian Stock—1 lb. bees with unt. queen \$2.50, 2 lbs. bees with unt. queen \$4.00, 3 lbs. bees with unt. queen \$6.00. J. B. Marshall & Son, Rosedale Apiaries, Big Bend, L.A.

Golden and three-banded Italian; also Carniolan Queens—tested, \$1.00 each; Untested, 75c each. For larger lots and bees in packages, nuclei, etc., write for prices. C. B. Bankston & Co., Buffalo, Texas, Leon Co.

**BEES WANTED.**—To buy on shares or salary. State particulars. A. R. Vannatter, Ballinafad, Ontario.

**FOR SALE.**—Ginseng roots and seeds, or exchange for bees. P. Wilson, 283 Evelyn Avenue, Toronto, Ont.

### BEE SUPPLIES

**BEEKEEPERS.**—Please write for our Catalog. Write to-day for special prices on honey pails. Morgan's Supply House, London.

### HONEY

**WANTED.**—First-class white honey, the coming season's production. Will pay ruling prices and supply tins. Foster & Holtermann, Limited, Brantford, Ontario.

### REAL ESTATE

**ALL KINDS OF FARMS.**—Fruit farms a specialty. Write for Catalogue. W. B. Calder, Grimsby.

**FOR SALE.**—115 acres, two miles from town of 7,000. Part clay and loam. Nearly new frame house, bank barn, plenty of water; 12 acres fall wheat, 20 acres seeded, 10 acres small fruit, Skinner irrigation. See it at once. Wm. Doan, Box 187, Newmarket, Ont.

**FOR SALE.**—100 acres, Middlesex County. Ideal locality for apiary. Snap for quick sale. Apply Box 60, Canadian Horticulturist and Bee-keeper.

### SEEDS, PLANTS, SHRUBS

**YOU WANT "Reliable Seeds,"** get our Seed Price List and Save Money. Morgan's Supply House, London.

PRIVET, Barberry, Cedars, Spruce, Pines, Oaks, Chestnut, Walnut, Mulberry, for hedges, windbreaks, timber, mailing size, prepaid; dozen same variety, one dollar; hundred, five dollars. List free. John Downham, Strathroy, Ontario.

**FOR SALE.**—Seed Artichokes, Horse Radish, Potatoes (Cobbler and Early Harvest). Prize-winner Canadian Exhibition, Dahlias, Gladiolus. O. Sansby, 160 Kingston Road, Toronto, Ont.

### SPRAYS

**SAVE MONEY.**—Get our Spraying and Garden Supply Catalog. Morgan's Supply House, London.

## Deafness



Perfect hearing is now being restored in every condition of deafness or defective hearing from causes such as Catarrhal Deafness, Relaxed or Sunken Drums, Thickened Drums, Roaring and Hissing Sounds, Perforated, Wholly or Partially Destroyed Drums, Discharge from Ears, etc.

**Wilson Common-Sense Ear Drums**  
"Little Wireless Phones for the Ears" require no medicine but effectively replace what is lacking or defective in the natural ear drums. They are simple devices, which the wearer easily fits into the ears where they are invisible. Soft, safe and comfortable. Write today for our 168 page FREE book on DEAFNESS, giving you full particulars and testimonials.

**WILSON EAR DRUM CO., Incorporated**  
464 Inter-Southern Bldg. LOUISVILLE, KY.

## The Fruit & Produce Market

The Commission firms undernoted wish consignments of fruit and general produce. They will be pleased to have you write them for information, shipping stamps, etc., if you have fruit or vegetables for sale.

## STRONACH & SONS

33 Church St., Toronto, Ont.

Wholesale Fruit, Produce and Commission Merchants.

## H. J. ASH

44-46 Church St. - Toronto, Ont.

CONSIGNMENTS OF FRUIT & VEGETABLES SOLICITED

We give personal, consistent and reliable attention to every consignment. Shipping stamps furnished on request.

## DAWSON-ELLIOTT Co.

32 West Market St., Toronto, Ont.

Wholesale Fruit and Produce. Consignments Solicited.

## HERBERT PETERS

88 Front St. E., Toronto, Ont.

Wholesale Fruit and Produce

See advertisement on page x.

## Dominion Fruit Conference

A Dominion fruit conference is being arranged by Mr. D. Johnson, Dominion Fruit Commissioner, Ottawa, to give final consideration to important amendments to the Inspection and Sale Act, which it is hoped it will be possible to have made at the approaching session of the Dominion Parliament. The delegates to the conference will be appointed by the provincial fruit growers' associations, as follows: Ontario, 6; Nova Scotia, 4; British Columbia, 3; Quebec, 2; Prince Edward Island and New Brunswick, 1 each. The consumers in the prairie markets will be invited to send two delegates.

The subjects which it is proposed to discuss will include the following:

1. Adopting a more definite and explicit definition of the No. 2 grade.
2. A definition of the No. 3 grade.
3. Provision for marking opening packages.
4. Making Section 321 (c), in regard to overfacing, more definite.
5. The proper filling of packages to be compulsory.
6. The standardization of packages: (a) uniform apple barrel, (b) uniform apple box for domestic use, with provision for permits for using an export box to comply with the trade requirements of any foreign country; (c) uniform peach, pear and prune box, and four-basket crate; (d) uniform apple crate; (e) standard berry box, preferably the imperial pint and imperial quart; (f) uniform berry crate; (g) standard basket.

## Apples in Storage

The following is an approximate estimate by the Dominion Fruit Division of the apples in store at the following points on February 28th, 1918, and on the same date in 1917:

Place	1918.	1917.
	bbls. boxes.	bbls. boxes.
Nova Scotia	100,000	55,000
St. John, N.B.	7,370	300 (No figures.)
Quebec, P.Q.	3,500	1,300 3,500
Montreal	22,140	13,674 7,500 5,500
Ottawa	9,500	1,800 2,875 475
Toronto	22,745	11,700 1,500 3,000
Hamilton	2,800	1,400 1,700
Georgian Bay		
District	1,500	3,150
Lake Ontario		
District	7,100	8,750
Winnipeg	31,500	5,400 3,400 12,000
Regina		5,400 (No figures.)
Calgary		11,300 6,000

208,155 50,674 87,275 26,975

## Potatoes Spoiling

Food Controller Herbert Hoover announced recently that owing to the car situation in the United States, large quantities of potatoes were spoiling. There were about 130,000 carloads of potatoes on November 1 which should have been moved from the principal producing centres, and up to the 1st of February there had been moved about 28,000 carloads, while there should have been moved over 50,000. The result is that potatoes are piled up in the producers' hands and the consuming centres have been supplied by virtue of the summer gardens and other stores carried over from last year.

The members of the Clarkson Fruit Growers' Association have passed a resolution protesting against the proposed early closing of fruit and vegetable stores in Toronto during the summer months, as they believe that it would interfere with the handling of perishable fruits.



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# The Canadian Horticulturist

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## Strawberry Growing in Prince Edward County\*

Howard Leavens, Bloomfield, Ont.

**S**TRAWBERRY growing in Prince Edward County, Ontario, has grown to large proportions in the last five years, due to a large extent to the demand by the canning factories for the fruit at good prices. There are fifteen to twenty factories in the county, and although there are not enough berries grown to supply all the factories, enough factories run on them to take all that are grown. In fact, the Dominion Cannery not being able to get enough berries from outside growers have been growing a large acreage on their own farms.

The prices paid by the factories have been good, averaging nine cents during the past three years. Last year ten cents a quart box was paid for the whole crop. Some growers ship their berries, but the high prices paid at home has not warranted very heavy shipping, as at least four cents a box more must be realized in order to pay the extra expense of boxes, crates and express. Also, in shipping berries a great deal more care has to be taken in filling the boxes and sorting the fruit, as the factories will accept fruit that will not ship, when they are getting the whole crop. Also, at the end of the season, as well as after a rain, there is a certain amount of fruit not good enough to ship, and taking this all into consideration at least a margin of four cents is needed to break even with the factory price.

There is considerable land well adapted to growing berries around Picton and Bloomfield, as well as in the western part of the county. This land is mostly loam with some black ground. Usually a heavy coat of manure is applied to the land the previous season to setting the plants, and a hoe crop is grown to clear the land of weeds. Very little fertilizer has been used in the county, most growers depending on manure. Potatoes have been a favorite crop to precede as well as follow the strawberry crop.

The main varieties grown have been the Wilson, Senator Dunlap and Par-

sons Beauty. Possibly seventy-five per cent of the berries grown are the Dunlap. The main objection to the Dunlap is the white tip, which affects the appearance of the fruit in the can. The Parsons Beauty is a deeper red all through and shows up better after being canned, although the Wilson has the best quality of the three varieties.



An apple tree infested with the green apple aphid. Note the curled condition of the foliage.

The season before last a blight affected a large number of patches, and after two or three pickings the plants wilted and died. This blight affected practically all varieties except a few plantings of Wilson berries, and they seemed immune, a full crop being harvested from them. Whether this was due to the variety, or the land, or conditions under which they were handled, I cannot say.

Some growers in setting the plants, especially where a number of acres are set, are using the tomato planter for this work. This machine with three men, will set and water 12,000 to 18,000 plants a day. Those who have used it

claim that it is equal to hand setting, and saves a great deal of time. We have found it pays to set plants as early as possible in the season, so as to give them a good root before too much dry weather sets in. We have not tried setting in the fall, but believe that early spring setting suits our conditions best.

Where the land is fairly clean of weeds two crops are taken off before the patch is ploughed up, although the second crop is not expected to be as heavy as the first. Some plough two furrows through the centre of each old row and cultivate this down after the first crop is harvested. If the season is favorable the new plants will run during the fall, which makes a patch for another year, practically as good as a new set patch. The weather conditions have a good deal to do with this practice and also the condition of the land. Sandy loam can be ploughed at any time, but some of the other soils, especially if there is a clay mixture, have to be plowed after a rain, and this does not always come at the right time.

We find it necessary to cover the plants in the fall with a coating of straw for two reasons: In the spring, if the plants are not covered they are apt to heave out of the soil during the freezing and thawing weather. If there is not straw around the plants at picking time the fruit will be very gritty and dirty, especially after a shower, which spatters the soil on the berries, and makes them unfit for use.

### Possible Yields.

The yield of berries varies a good deal according to the care and attention given the plants, and the season. One grower may put 10,500 quarts into the factory from one acre, and another 18,000 quarts from two acres. These parties make a specialty of berry-growing, where some other growers having strawberries more as a side line, have not had as large yields per acre, but possibly have not put on the same expense per acre. There is a good outlet for berries in shipping them by boat from Picton to Kingston, Gananoque, Brockville and some of the smaller places along the boat route, as

\* A paper read at the last annual convention of the Ontario Fruit Growers' Association.





Barrel spraying pumps still do good work in many small orchards.

well as direct daily trains to Ottawa and Toronto, although Toronto is not as good a market for us, as the Niagara fruit generally fills that market.

So far there has been sufficient help for picking the crop. This help comes from the villages and town, and also a good many families are moving in about that time preparing for the factory season. Each season, however, help is getting scarcer, and the cost of handling of the crop is greater.

## The Outlook for Pears

H. T. Foster, Burlington, Ont.

Although pear-growers may feel discouraged by present conditions of labor, packages, insect pests, and general high cost of production, with perhaps a limited market and at times a prospect of prices not sufficient to cover production expenses and leave a decent profit, my advice to them is to take the best possible care of their orchards. Fertilize and cultivate the ground properly; prune your trees as much as necessary; spray as thoroughly as you know how; pick, pack and sell your fruit as intelligently as you can. If you do, I believe that the results will be satisfactory, for there is always a demand for real good fruit, well packed.

Although our export pear trade has been closed, there is a fairly good local market, as well as the western market.

I believe it would be a mistake for a pear grower, who has his pear trees grown or bearing, to neglect them at this time, or this year, and expect to take them up again when things become more settled. Unfortunately fruit trees and the fruit crop are such that they need attention all the time. When a season of failure comes we have to bear with it, and when a season of success and profit comes, we ought to be

in a position to enjoy the benefits. In other words, "we should have our dish right side up when the shower falls."

### The 1918 Prospects.

"The prospect for 1918, I believe, is reasonably good if the trees have come through the winter all right, and I think they have.

It is reasonable to expect that as the 1917 crop was very light, the 1918 crop will be a good average, and as sugar is likely to be more plentiful, the canners and consumers generally will use more pears, and at good prices.

## Dusting Comparisons

Prof. L. Caesar, Provincial Entomologist, Guelph, Ont.

Dusting is a wonderfully rapid and easy way of treating an orchard for insects and diseases. It is on very large trees about seven times more rapid than spraying, even with a power outfit. On smaller trees the difference of time is not so great. In my own experiments the cost of the two methods has been on large trees about equal, but most people will find dusting more costly, that is when taking into consideration the materials, time and labor. If other work, as will be the case this year, is pressing, the value of the time gained may more than compensate for any extra cost.

If I were to judge from my own experiments of the last two years I should speak highly of dusting, because it has given me excellent results, just as good on the whole as the liquid lime-sulphur and arsenate of lead. From Nova Scotia, New York and Michigan, I have also received word of some men having had last year very good results; on the other hand there are many reports of failure. It seems to be the general opinion, and it is also my own opinion, that under conditions very favorable for scab development, dust is inferior to the liquid. I believe this is chiefly because it washes off much more easily as a rule. I think, however, that in an ordinary year, in a well pruned orchard not kept dark and also damp by dense windbreaks, the dust will prove satisfactory if well applied.

### How to Dust.

My experience would lead me to favor doing the dusting from at least three sides, and if possible from four. One of these sides should be done with the wind. A strong wind is not, however, very desirable, as a rule, for dusting. A good deal of practice and study is necessary to dust thoroughly and rapidly. It is also of very great importance to apply the dust at the right time; the spray calendar should be consulted for this. If the foliage is moist the dust adheres better, but we often cannot wait for this condition.

Whether any dust can be relied upon to control San Jose and Oyster-Shell Scale, I am not prepared to say. I thoroughly controlled San Jose Scale myself last year on forty-eight large apple trees with soluble-sulphur and tale dust, but was fortunate in having the trees just moist enough to dissolve the dust immediately, but yet not wet enough to cause it to run off.

Where San Jose Scale does not occur, and Oyster-Shell is not abundant, I should recommend that the first dusting of apples should be when the leaves are about the size of a 10-cent piece. No poison need be used in this application. Any extra application besides the regular ones just before and just after bloom may be given without poison to save expense. I should prefer this year to buy nearly half the dust without poison. This will reduce the price more than fifty per cent.

## Care of the Peach Orchard

J. E. Allis, Medina, N. Y.

The ideal location for a successful peach orchard is a north-western slope. The kind and condition of the soil is not so important as its depth and fertility. I would like a soil not less than 20 feet above the rock, and would prefer a clay subsoil in rather poor condition at time of setting trees. I find by experience that I have better success with a soil that is a little low in fertility when starting a young peach orchard.

After the trees are grown and after it bears its first crop, I think there is little danger in forcing growth. An ideal crop for the first two years is a tomato crop, with the rows placed so that one can cultivate both ways.

During the next three years I would watch my orchard and if I thought it was not making sufficient growth, I would apply a mixed fertilizer of nitrogen and phosphoric acid. From the fifth to the tenth year I would apply barn manure as I considered the orchard required. From the tenth to the twentieth year there is little danger of forcing an orchard too much.

## Destroying Potato Beetles

Potato growers in Canada who have extensive acreage, might save money by using the insecticide sodium arsenite, which is so largely used by Maine growers. This can be made at home by boiling one pound white arsenic and one pound sal soda in one gallon of water until dissolved. One-half gallon of this is equal in poisoning value to one pound of Paris Green. It should never be used, however, except in conjunction with Bordeaux mixture. Otherwise it will kill the foliage badly. Where large acreage is grown it would be worth while giving this a trial.



# The Fight Against the Green Apple Bug\*

W. H. Brittain, Provincial Entomologist, Truro, N.S.

OUR work against the green apple bug during 1917 was simply a continuation of that of previous seasons. While nothing new or startling was brought out our former observations have been confirmed and certain phases emphasized. Owing to certain factors the green apple bug was not as much in evidence in many orchards as during the previous three years, but in many they were still abundant. In the orchards where our work was conducted we could detect no diminution in their numbers, since all the orchards treated were literally swarming with the pests.

Our work was done throughout on a thoroughly commercial scale. Fifteen acres of large bearing orchard were treated. Had we concentrated our efforts in one place, this area could have been much increased.

The most important point brought out by our experiments was the great importance of the spray before blossoming. In fact if this spray has not been given, there is little utility in applying the after-blossom spray at all. At this time the insects have attained half size and over and cannot very well be destroyed by any ordinary spray. It would be necessary to use a stronger dilution than would pay commercially. The leaves are well opened and it is necessary to do extremely slow and careful work and to employ a higher pressure than most outfits are capable of, to obtain any degree of success. Further than this, the likelihood of serious injury to foliage and fruit is much greater than in the case of the pre-blossom spray. Work should be commenced when the Gravenstein blossoms are showing good and pink and just beginning to spread apart, and if possible, the varieties should be treated in the order of their blossoming or as nearly so as possible. It is not possible, for example, to do the best work on Northern Spys when conditions are just right for Gravensteins and vice versa.

In the control of this pest the factors that may tend towards the results of the very best work are endless. One of the most annoying habits that this insect possesses, among many others, is the habit of forcing its way inside the blossoms when they are about half opened. Frequently we have seen a grower make an apparently clean sweep of all the bugs on his trees only to find them clustering in large numbers inside the blossoms. This condition was much aggravated during 1917 by the suddenness with which all varieties burst into

bloom, but it is one that must be carefully watched if success is to be attained. When the blossom petals have spread apart forming a globe-shaped body it is then too late for effective work, as the bugs are sure to seek shelter inside and all work should cease until they have opened out again.

## Necessary Factors.

Two things are necessary to consider in this green apple bug work; one is that control sprays such as Blackleaf 40 are expensive, and there does not appear to be any immediate prospect of securing cheaper materials. The other is the fact that the very kind of spraying necessary for the bug, is the kind that is likely to do the most injury if care is not taken. It is a fortunate fact that the combination that we have devised as being most effective against the bug is also the cheapest and safest to use.

Blackleaf 40 works best in combination with soap, which enables it to spread better, and may also be of advantage in liberating the nicotine. Now soap cannot be used with lime sulphur, but it can be used with soluble sulphur, which is a much cheaper compound. We have not been able to get any poison to use safely with soluble sulphur throughout the season, for, while soluble sulphur is harmless enough in itself, it is very unsafe to use with poisons. Since, however, the codling moth is not a problem with us, we found that we could omit the poison without sacrificing anything in the way of pest control in the after-blossom spray. Indeed the mixture of soluble sulphur, soap, and

Blackleaf 40 applied at heavy pressure is death to most biting insects, blowing very large numbers from the trees and killing many by contact. We were much surprised last year to find that we secured a very satisfactory control of canker worms with this mixture—better in fact than was obtained in the rest of the orchard where an arsenical spray was given. We have thus obtained a reasonably cheap combination which does the work better than the more expensive one.

I do not wish to take any of the force from Mr. Sanders' remarks about spray injury, but it is necessary to say at this point that our experience of the last two years confirms his experiments of last year, that soluble sulphur used without a poison when applied to the underside of apple leaves is not injurious to anything like the same extent as lime-sulphur. We must spray the foliage from every angle to destroy the bug, we must use force and we must use lots of material. By using the mixture which I have described you can do so with less fear of injury than with that commonly used. I do not say that you will never get any injury from this combination, but our experience for two years on a large commercial basis indicates that it reduces injury to a minimum. Thus the cheapest and most effective mixture is also the safest. Not many growers would be enthusiastic about getting a good control of the bugs if it meant the sacrifice of their crop from spray injury. The problem would be simple enough if we could apply our contact spray and our fungicide separately, but this doubles the time, as well as the labor cost, and is, therefore, impracticable in the average commercial orchard, hence the great value of being able to use such a mixture as I have described.



The scars on these pears show the effect of the feeding punctures of the green apple bug.

\* Extract from an address delivered at the recent annual convention of the Nova Scotia Fruit Growers' Association.



## Results From Spraying for Green Apple Bug in 1917. Orchard No. 3.

Year	Total crop for entire Valley Bbls.	Percent-age of previous season's crop	Total crop in Orchard	Gravensteins Bbls.	Non-pareils Bbls.	Russets Bbls.	Per cent.. previous year's crop, all varieties	Theoretical crop Bbls.
1910	323,000	.....	.....	.....	.....	.....	.....	.....
1911	1,740,000	538.7	2,200	2,206	95	600	.....	.....
1912	993,338	57.1	1,800	206	55	400	81.4	1,256
1913	650,900	65.5	1,300	123	110	81	72.2	1,179
1914	650,900	100.	780	159	4	75	60.	1,300
1915	613,882	94.3	560	90	1	46	71.8	735
1916	681,470	111.	360	39	3	25	64.3	621
1917	720,000	105.6	1,465	246	75	330	406.9	380

All those who have this pest to contend with should at least give it a trial.

The soap that we have been using has been a soft fish oil soap. It can be poured into the mixture without having to be first dissolved in water.

The accompanying table shows the

steady decline in the crop production until this year, when the orchard was sprayed in accordance with the treatment outlines. The theoretical crop is the crop that the orchard would have produced had it followed the average for the entire Valley.

## Varieties in Berries \*

J. L. Farmer, Pulaski, N.Y.

TO the berry grower the variety question is the most important of all. A fruit grower does not obtain maximum results until he finds the exact variety that fits into his niche. It would not do any particular good for me to recommend a list of varieties. I might be prejudiced, and a variety varies greatly under other conditions and in other hands. The successful berry grower must keep testing varieties himself, just feeling, feeling. Too often, most fruit growers get married to one or two varieties and refuse to be shown. Varieties of berry fruits are continually improving and what was good enough for us several years ago, is not good enough now. It is safest to plant several varieties, as no one variety will pay the best of all, every year, in a period of five or ten years. Frosts, drouths or excessive wet, may destroy this year the variety that was your favorite last year.

During my experience as a berry grower, I have often run across varieties that seemed to me to be so perfect that I had the idea that at last I had found it, but before I could shout "Eureka," something would happen. A notable illustration of this was the Early Ozark Strawberry. At one time this variety behaved almost perfectly with us; now for some unknown reason, it is practically a failure on most portions of our farm. A few years ago we, in common with other berry growers, came to the conclusion that pistil-late varieties of strawberries were unnecessary. After going through three years of frosty weather during blossoming time and losing most of our crops of strawberries except the pistil-late varieties, we came to the conclusion that we cannot safely discard the pistil-lates. Potato growers who are wise plant a

few of the bugless variety every year. They know that this variety will produce potatoes when all others fail, so don't drop your pistil-late strawberries.

It takes the public a tiresomely long time to recognize the merits of a new variety. Twenty years ago the first plants of the Plum Farmer raspberry were sent out. Thousands of plants were thrown away during the first ten years for want of buyers. There was little demand for them. To-day it is increasing in popularity, and after over twenty years is grown more than any other. I had much to do in the introduction of the fall bearing strawberries. I spent a lot of time and money in rounding up the supply of plants and advertising them. I knew that they were a good thing and always believed in them, but after a while I lost confidence in my ability to convince others that they were a good thing. Eventually the people awoke to their merits, but it was too late for me, and others reaped most of the benefits of my efforts.

## Watch Your Rotation

The principal essentials to a good rotation are as follows: Move exhausting crops, like potatoes and cabbages, to different ground each year; let tap roots follow fibrous rooted vegetables so far as possible; and studiously avoid successively growing plants of the same natural family on a plot. This last rule is by no means the least important. Owing to the fact that the insects and fungi preying on a particular plant also attack other members of the same family, a rigid adherence to this method is an invaluable preventive of the recurrence of plant disease. For example, let us presume that our cabbages have been infected by the fungus-producing "club-root," or by the gall root

weevil. Then in either case the germ of the trouble (the spores of the fungus or pupae of the insect) lie for a time dormant in the soil itself. Now suppose that we have been indiscreet enough to sow turnip seed on the infected ground. The result will be that when the dormant pests awaken into life, they will at once commence an attack on the young plants. If we had sown peas or any other crop not related to cabbage they would have died for lack of suitable food.

## Small Sized Peaches

E. F. Palmer, Horticultural Station, Vine-land, Ont.

I have a peach orchard situated on the south shore of Lake Huron. The trees are about 10 years old. The soil is a rich deep clay mixed with sand. These trees made rapid growth for four or five years and produced fruit of large size. Now the fruit is much smaller, and even though severely pruned and carefully thinned, the Crawfords particularly are running largely to No. 2's in size. The orchard is thoroughly cultivated, but we have not applied any fertilizer owing to the natural richness of the soil. Apple trees in the same soil make rapid growth and bear heavy crops year after year without a fertilizer. Can you give me any explanation as to why the peaches should be small?—H. T.

IT is difficult to state the probable cause of the fruit running so much smaller now than formerly, but I will offer two or three suggestions, some of which, from your better knowledge of the orchard may, in your opinion, fit the case.

In the first place, do you think that the hard winter we had about four years ago would begin to affect the trees now they are in full bearing. I was in your orchard early in the spring after that freeze and remember that the trunks of practically all the trees had been so badly "winter-killed" that the bark had spread away from the wood. Of course, I know that the trees leafed out as usual in the spring and apparently recovered altogether from the effects of the freezing. Possibly an examination of the trunks of the trees at this date might throw some light on your problem of small fruit.

In the second place, there is the question of season. The past two seasons, and particularly that of 1916, were unfavorable for peaches as the season was much delayed and fruit ripened so late that it did not attain its proper size. The only thing that saved the size of the fruit this past season was the fact that the trees were, as a whole, lightly laden and therefore reached marketable size in spite of the lateness of maturity. Some varieties that we have here and which had a full crop were small. That brings up the question of thinning. As you know, thinning is generally practiced throughout this district in seasons when there is an abundant set of fruit. It is possible that your small fruit may be due to

\* Extract from a paper read at the recent convention of the Western New York Horticultural Society.



overloading. However, I do not expect that this would be the case.

Last, and possibly the most likely explanation, is that of fertilizers. I note you say in your letter that you have "not applied any fertilizer owing to the natural richness of the soil. Apple trees in the same soil make rapid growth and bear heavy crops year after year without a fertilizer." Recent experimental work in the United States has established the fact that the peach is a particularly heavy feeder. In fact, work at Geneva showed that the peach took more food material out of the soil than any other fruit. This heavy feeding, of course, is not entirely due to the large amounts of fruit which come off, but also to the naturally heavy foliage of the peach. Experimental work in the States has further shown that the peach takes out of the soil small amounts of phosphoric acid and large amounts of nitrogen and potash, though up until that time, we had quite generally been led to believe that the peach did not require a nitrogenous fertilizer. In fact it was regarded as detrimental, if anything.

Most soils contain a sufficient amount of potash, though it becomes only slowly available as plant food. However, nitrate of soda in breaking up, sets free or makes available a very considerable quantity of potash, and since the peach feeds mainly upon nitrogen and potash, it seems reasonable to suppose that the addition of nitrogen alone will be all that is necessary, assuming

that the potash and the small phosphoric acid requirements of the peach would not overtax the supply already in the soil. The work of several of the United States stations support the hypothesis that if nitrate of soda is used, the application of potash will be unnecessary. Experimental work in West Virginia demonstrated that out of eight various fertilizers used, nitrate of soda, when used alone, gave the best results of all the incomplete fertilizers.

In all cases, the use of nitrogen was correlated with increased vigor, luxuriant foliage, greater productiveness and greener color of fruit. The greener color of the fruit, of course, is directly due to the increased foliage. You will probably have a good idea as to just what condition your soil is in as regards nitrogenous fertilizers and will be able to determine in your own mind as to whether or not it is this fertilizing element that is lacking.

## Dusting vs. Spraying Results in Nova Scotia

W. S. Blair, Supt. Experimental Station, Kentville, N.S.

TESTS were conducted by the Experimental Station, Kentville, N. S. in 1917 to find the relative efficiency of sulphur dust as compared with the regular lime-sulphur spray. Twelve trees were included in each plot. The sulphur dust, composed of 85 per cent. finely ground sulphur and 15 per cent. arsenate of lead, was applied by using a machine which blew it on the trees in the form of dust. The lime-sulphur, made according to the regular formula, one gallon of concentrate lime sulphur to 40 gallons of water, to which two and one-half lbs. of dry arsenate of lead was added to 100 gallons, was sprayed on the trees with the regular power spraying machine. Both applications were made on the same day, and uniform trees of the same varieties were used. Four applications were given, two before and

two after bloom. The results obtained were as follows:

Variety	Per cent. Clean	Per cent. Scab	P.C. Insect injury.
Baldwin			
How treated			
Dust .....	97.5	1.85	.56
Sprayed .....	91.03	6.56	2.39
Not treated ....	79.93	12.24	7.80
Variety			
Gravenstein			
How treated.			
Dust .....	84.2	12.77	.28
Sprayed .....	80.02	14.60	.00
Not treated ....	33.29	63.81	.52

From the foregoing it would appear that under the seasonal conditions of 1917, the dust was equally efficient a fungicide as the lime-sulphur. This, however, may not always hold true and these results should not be considered conclusive. The dust spray gave a better control of canker worm and other insects. The foliage injury was also less where the dust was used, the foliage on these plots being better during the summer than on the sprayed plots. The comparative cost of the two methods is given in the following table:

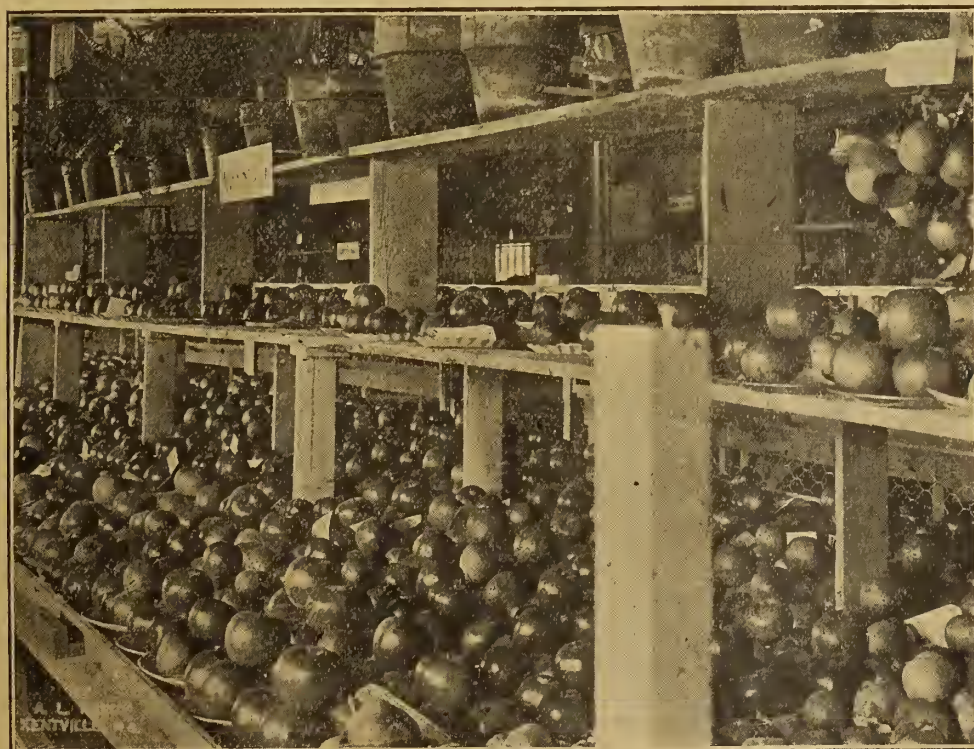
Assuming 40 trees to the acre, which is a general average, the quantity required for an acre and the time required to do the work, and cost of same for four applications, would be as follows:

	Dust	Spray
Quantity used per acre	280 lbs.	700 gals.
Time required to do one acre .....	2½ hrs.	11 2-3 hrs.
Cost of material per acre .....	\$18.62	\$7.70
Cost of application per acre .....	2.00	9.33

Total cost ..... \$20.62      \$17.03

The sulphur-arsenate dust cost \$6.65 per 100 pounds. The lime-sulphur arsenate cost .011 cents a gallon. The concentrate lime-sulphur cost 20c a gallon, the dry arsenate of lead 25c a lb. One team and two men were employed and their time was charged at the rate of 80 cents an hour, 50 cents for team and man, and 30 cents for one man.

From the foregoing it will be seen



Spraying is making great headway in Nova Scotia. Note the splendid coloring of this fruit as shown at a Nova Scotia Exhibition.



## Comparative Dusting vs. Liquid Spraying Costs

	Dust	Spray
Total amount used on plot of 12 trees .....	84 lbs.	210 gals.
Amount used per tree, 4 applications .....	7 "	17.5 "
Amount used per tree for 1 application .....	1.75 "	4.37 "
Total time required on plot of 12 trees .....	45 min.	210 min.
Time required per tree, 4 applications .....	3.75 "	17.5 "
Time required per tree for 1 application .....	.94 "	4.37 "
Total cost of material on plot of 12 trees .....	\$5.58	\$2.31
Cost of material per tree, 4 applications .....	.46	.19
Cost of material per tree for 1 application .....	.11	.04
Total cost of application on plot of 12 trees .....	.60	2.80
Cost of application per tree, 4 applications .....	.05	.23
Cost of application per tree for 1 application .....	.01	.05

that it costs \$3.59 more to dust one acre than to spray it. The cost of material is very much greater where the dust is used, but this is offset by a much less

cost in application. There is a great advantage from being able to do the work quickly, thus giving time to do other important farm work.

## Some Grape Growing Experiences

C. C. Roosa, Buffalo, N.Y.

**I**N November, 1910, I secured 10 acres of land for a summer cottage on the lake front, near Silver Creek, N. Y. The soil is Dunkirk clay loam, lying upon Genesee or Portage shale, the bed rock being three to ten feet beneath the surface. It slopes very gradually toward the lake shore, which is a perpendicular cliff 35 feet high. The surface drainage is apparently ideal. The plot contains about 4,000 Concord, and 500 Niagara grape vines, set 9 x 9—about eight acres.

The vineyard appealed to me, and I at once wrote the Agricultural College at Cornell University, and was referred to Uncle John Spencer, of cherished memory, for advice about grape growing. In a delightful way Uncle John induced me to attend the annual meeting of the Chautauqua and Lake Erie Fruit Growers' Association, introduced me to the experts from the Fredonia Experiment Laboratory, and to many grape growers. I resolved to learn grape culture, secured literature advised by these men, read it, laid my plans of culture for the coming season, and by spring had a fair idea how to manage production.

During the winter of 1910-11 I began operations by applying two forkfuls of light horse manure to each vine, and trimmed to not more than four canes; gang plowed and horse hoed in May; cultivated with disk and spring-tooth harrow about once in two weeks until August 1st; I then sowed crimson clover for a cover crop. Root worm was bad in nearly one half of the vineyard, especially where the vines were weak, the soil thin, or the drainage poor. I sprayed twice with Bordeaux, lead and molasses. The yield in 20-lb. baskets was 18 tons. The crimson clover made a poor catch and failed.

Fearing the vineyard was seriously affected with root worm, and inasmuch

as it had been neglected and over-cropped for several years, I sent to Chicago in November for three car loads of cattle manure, and applied three forkfuls to each vine.

During the winter of 1911-12, the weather was very open until early in January. Much rain fell, and especially about January 10th. Following several days of warm weather, the ground was saturated with water. Surface water was standing in low places. The weather changed suddenly to below zero, and stayed near or below zero for about six weeks. The saturated soil froze solid. The vines were cut back more than the previous year, many of them to one or two lanes. In the spring it was found that over 600 vines had been winter killed. There were about 400 missing vines in the vineyard when I bought it. This meant a loss of 1,000 vines, or nearly two acres of cropless area in the plot. Early in May, as soon as the soil could be worked, acid phosphate was applied, 200 lbs. per acre, just before plowing and horse hoeing. Nitrate of soda was applied during June to the weakest vines. I sprayed twice with Bordeaux, lead and molasses. The root worm beetles were so thick in parts of the vineyard that the horses were covered with them during the second spraying, about July 10th.

### Spraying Results.

At my request, Mr. Hartzell, of the Fredonia vineyard laboratory, made observations previous to the spraying period. We wished to learn whether the beetles were attracted or repelled by certain spray material.

Zones of several rows each were marked. One received no spray, one received Bordeaux and lead, the balance received Bordeaux, lead and molasses. White sheets were spread and fastened

under several large vines, to catch any dead beetles killed by the spray mixture. Careful watch over these sheets for ten days failed to show a single dead beetle. A heavy dashing rain occurred two days after the first spraying. Most of the spray mixture seemed to disappear from the foliage as a result of the storm, and the beetles swarmed in enormous numbers during the period between the two sprayings, and the second spraying, which was immediately followed by several rainy days, caused no apparent decrease. During the incubation period ten vines in each zone were examined scientifically by Mr. Hartzell, the number of egg clusters on each vine, and the number of eggs per cluster were recorded, and the results filed. Failure to kill the beetles by spraying led to an investigation by Mr. Hartzell, of the solubility of the various brands of lead, both with and without molasses, in the spray mixture. It was proven that molasses decreases the adhesiveness of all leads, making them about 95 per cent. soluble. The rains had washed the lead off the vines.

Cultivation was thorough until August 1st, then red clover and cow horn turnip seed were sown. The summer was dry, the clover did not catch well, the fall was wet and the cow horn turnips grew very large, and with a heavy growth of chick weed, the clover was smothered. The turnips grew in spite of the hardness of the soil, but they were all above the surface, with only a little taproot reaching down into the ground. The result was that the turnips froze and disappeared, and the next spring there was no cover crop to plow under. The crop yield was eleven tons of inferior fruit. The vines made but little wood, many were badly weakened by winter freezing, especially the Niagaras, and all were severely cut back, some to the ground, many to the lower wire, and many to only one or two canes.

The season of 1913 was cold and backward. Wood growth was very deficient. In the early spring I planted 1,000 vigorous one-year grape roots, filling every space in the vineyard where a vine was missing, and gave these young vines the most careful attention. Cultivation of the vineyard was thorough until August 1st. Root worm beetles were less troublesome. The vineyard was sprayed twice with Bordeaux and lead only. The only fertilizer applied was 200 lbs. of potash per acre. The yield was only seven tons of inferior fruit. In November I again sent to Chicago for two carloads of cattle manure, and applied two forkfuls to each vine, including the new young vines.



### The 1914 Season.

The season of 1914 showed great improvement. It was a good season for wood growth. The vines sprouted and budded well, and fruited heavily. The manure applied during the previous winter was worked into the ground during cultivation. Acid phosphate, 200 lbs. per acre, was applied previous to the spring plowing. After the second disking early in June, burned lime was applied, 1,000 lbs. per acre, to make the soil lighter, and to aid chemical action of the soil ingredients. One great surprise was the fact that the root worm beetles disappeared almost completely, but the vines were sprayed once with Bordeaux and lead to repel migrating beetles that might come from neighboring vineyards. None came. The yield was very satisfactory. The six acres of fruiting vines bore 18 1-4 tons of fine grapes.

In spite of good surface drainage, there were many places that remained wet and soggy for days after rain storms. This hindered cultivation. As a remedy, and to reduce the chances of future winter injury, I put in 3,100 feet of 3-inch drain tile, laid two feet deep. As the vineyard seemed now to be responding well to the treatment it had received, and as the trellises were low and the wires but twenty-four inches apart, I raised all the short posts enough to put the wires thirty inches apart, and then put a third wire in the middle. By this means I aimed to increase the yield by longer canes, and to prevent the blowing down of vines in the summer. I also adopted the plan of pinching off the sprout on each cane just above the top wire, and have had no trouble to speak of in the way of summer tying. The underdrainage, I believe, has since proved the greatest

single factor in improving the yield, in ripening the wood and fruit, and in promoting culture. Since then I have put in 1,200 feet more of 3-inch tile.

### The First Profits.

At the close of 1914, after four years of effort to revive a neglected and injured vineyard, and with over 1,000 non-bearing, newly planted vines, the books showed a profit for the first time of 9.2 per cent. on a valuation of \$300 per acre. Prices were too low to yield a profit unless the tonnage per acre could be kept well up. I determ-

ined, therefore, to set strong vines each spring in every vacant space where a vine died during the preceding season. I could see no way of reducing expense, except for fertilizer and spraying. I therefore decided to use nitrate of soda, 200 lbs. per acre, and acid phosphate, 300 lbs. per acre, and omit the spraying for at least two or three years, if the root worm beetles were not threatening in numbers. This, therefore, has been my policy during the last two years, 1915 being the last year I resorted to spraying.

(Continued on page 86.)

## Preparation and Application of Dust Mixtures

Rev. Father Leopold, Oka Agricultural Institute, La Trappe, Que.

**L**AST year I used a duster in our 65 acres of orchard for the first time. In its operation I was assisted by Mr. Romeo Cossette, B.S.A., our assistant professor of pomology. Finely ground sulphur, arsenate of lead in powder form and a filler were the substances used.

The preparation and use of dust mixtures for orchard work is an important matter. Fineness, purity and perfect blending are the essentials in the preparation of efficient dust mixtures. Fineness of material is the most important requirement, as in all other spraying operations a complete, thorough and uniform covering of both leaf and fruit surfaces is absolutely necessary for satisfactory insect and fungus control. It should require no argument to prove that if the fineness of the material is increased four or five times, the spraying and covering power is increased four or five times, but this is something which is easily overlooked un-

less consideration is given the matter.

Fineness of material in the case of dust mixtures is also all important from the point of uniform distribution. In dust application, the distribution is affected by the air, and only the finest material can be expected to carry and float through the air into the trees and coat the foliage. Finally, fineness is essential for both distribution and sticking, for coarse material will not float and carry like fine material, and even should coarse material reach the foliage and fruit, it will readily fall off, while a fine dust, as it is well known, can hardly be brushed off.

### Sulphur.

Of the materials entering into dust mixtures, the most care should be taken to secure a superfinely ground, refined sulphur. There are many brands on the market that are entirely satisfactory for other purposes, but which are not sufficiently pure or finely ground for use in dust mixtures. Insist upon having refined sulphur, guaranteed of such fineness that 95 per cent. or more will pass a sieve having 200 meshes to the linear inch, equal to 40,000 holes to the square inch. Excessive fineness means: greater covering power, more complete and uniform distribution, better sticking on the foliage, and better disease and insect control.

The same care should be used in securing dry arsenate of lead as in purchasing sulphur, as this also means even application and greater adhesiveness, when mixed with sulphur.

I used two fillers in the orchard in dusting last season, gypsum and lime. Experiments carried on so far indicate that the best filler to be used for the purpose of reducing the cost of the mixtures is finely ground gypsum of the grade known to the trade as Terra Alba. We used this filler mostly all over in our dustings, with the exception of a block of trees where we used slaked lime thoroughly pulverised. It is im-



A well kept vineyard and orchard in the commercial fruit districts of the East.

\*Extract from an address delivered before the recent annual convention of the Province of Quebec Pomological and Fruit Growing Society.





Father Leopold applying the spray in the orchard of the Oka Agricultural Institute at La Trappe, Que. The spray completely hides the tree being sprayed.

portant to get a filler that has about the same specific gravity as the sulphur used.

#### A Few Suggestions.

The time of application is very important for both the control of scab and codling moth. One of the great advantages of dusting over the liquid spray is the ability to dust in all sorts of weather, even when the ground is soaked with rain and foliage is dripping. I do not intend to mean that one must wait for a rain to begin dusting. No; for we must not forget that if we wish to control or rather prevent scab, we must get the dust or liquid sprays on the foliage before the rain and not after. Fungus spores need moisture to cause germination, so it is necessary that the dust be on the trees to prevent this germination, before the rain falls. This does not mean either that the dust must be put on immediately before the rain, as it must have an opportunity to set before the rain falls.

When dusting with a power machine in a light or moderate wind, the machine should not be driven too close to the row of trees being dusted, as the dust should have time to spread out in a cloud before passing in and through the foliage.

The best time to dust is early in the morning or late in the afternoon, when there is hardly any wind. If one has to dust in the wind, if the wind is in the east, the application should be made by driving east and west.

It is necessary to cover both sides of every tree to do satisfactory work.

Be careful to cover the lower branches as well as the top ones. It will sometimes be necessary to send the outlet

pipe backwards in order to cover the low branches, after the outfit has passed the tree. The best manner to use the outlet pipe to avoid unnecessary loss of dust while covering every point will soon be learned by the man holding the pipe. It is impossible to give a fixed rule, but generally speaking, a steady up and down movement is the best way. Wind and other factors have to be taken into account, and we must adjust ourselves to different circumstances.

Dusting is a tiresome job, and a great strain upon a man if he is giving his whole attention to his work. It would be wise, therefore, to change the man if a whole day's work is to be done.

The outlet pipe is regulated by a hand clutch, and when the trees are far apart, a saving of the material may be made by shutting off the flow of dust, which is done easily. It is rarely necessary to open the flow to its full capacity, generally we maintain it half full, but always have the engine running at full speed. The dust must be forced into the leaf hairs, the calyx of the flowers, and similar parts.

It is advisable to have a good pair of goggles. Those provided with a rim of soft wool felt to exclude dust are the best.

If I was asked if I would recommend dusting generally, I would reply no; but to the owner of a large orchard, I would say that he could invest safely in a large outfit if he has any trouble getting over his orchard in time in wet weather like the one we had last season. For sucking insects, we have not yet found a substitute for the liquid sprays, though some say that in a dusted orchard aphids are less prevalent

and do less harm. Personally, we have not tried any tobacco dust to control sucking insects.

## Late Bearing Strawberries

L. J. Farmer, Pulaski, N.Y.

Some years ago the late J. H. Hale introduced a new strawberry which he named 11-59. Someone suggested that he stretch it one minute; he did, and afterwards called it "Midnight." A few years ago, S. R. Divine, of Sullivan County, N.Y., covered several acres of Marshall strawberries in the coldest part of the winter with straw and ice, keeping them back so that the berries ripened and were sold for a good price in August. It is not necessary to stretch your imagination or cover your fields with ice now in order to have real late strawberries; the fall bearing varieties attend to this. If these varieties are denuded of blossoms in early spring, and the blossoms kept out until near July 1st, you can pick plenty of berries in August. You can now ripen strawberries any time from early in June until November by proper manipulation of the blossoms. We had strawberries in August last season from common kinds of plants that were kept in cold storage and set out in the field about five weeks before we picked the fruit from them.

## Is Your Soil Acid?

As the soil gradually loses its basic materials, like calcium and magnesium, by cropping and leaching, such lime-loving plants as clover and alfalfa cease to thrive. Cultivation and cropping hasten the removal of the basic materials; this is one reason why some soils become acid and do not grow good clover even when fertilized.

As a means of determining the need of the soil for lime, the litmus paper test when properly made is probably as good as any chemical test. This test consists in placing blue litmus paper, which may be bought at drug stores, in contact with moist soil for half an hour. Tests indicate that soils which turn the blue litmus paper red in this time will be benefited by liming. Land that does not need lime to increase yields will have but slight tendency to change the color of the blue paper.

As a guide to temperature, in the case of plants you know, place box in 10 or 15 degrees higher temperature than that required for the ordinary growth of that plant, so as to insure rapid germination. For example, lettuce requires cool treatment, about 50 degrees, but the seed should be started at 60 or 65 degrees and moved gradually back to 50 degrees after germination.



## Tomatoes Under Glass

**A**T the recent Vegetable Growers' Convention held in Toronto, Mr. J. J. Davis, of London, spoke on some of the problems of the grower of tomatoes under glass. The most important consideration, according to Mr. Davis, is in getting the first two trusses to set fruit. At the time when these are in bloom it is usually too cold to open the doors and allow the wind to pollenize the plants, so this must be done by the grower himself.

Until last year Mr. Davis was in, the habit of doing this work with a bit of rabbit's fur. This, however, was a rather uncertain method, as you were never sure whether the plants had been pollenized until the fruit was formed. Last spring, however, he pollenized by knocking the pollen into a spoon and dipping the stigmas of each bloom into it. This looks like a lot of work, but according to Mr. Davis, it is easier than it sounds, and when these early fruits sell for 25 cents a lb., it certainly pays for the trouble. Mr. Davis found that it was only on certain days that pollen may be obtained, and unless conditions are favorable you might as well leave the blooms alone.

Another problem which Mr. Davis has solved to his own satisfaction during the year is the control of Brown spot of tomatoes under glass. This comes on the under side of the leaf and spreads rapidly by spores. Mr. Davis found that it could be controlled by sulphur fumes, which, however, should not be very strong or the foliage of the tomato will be destroyed also. The method employed by Mr. Davis was that of dropping a little sulphur on to a shovel-

ful of coal carried around by the attendant. It is important not to put much on at a time, but to keep up a

## A Few Hints on the Cauliflower

Chas. Syer, Bartonville, Ont.

**O**NE of the secrets in cauliflower culture is keeping the plant growing straight ahead all the time. It is well to plant the seed originally in rather poor soil and then transplant into richer soil later on. My early cauliflower is of the Snowball variety. This is transplanted first into a hotbed and then into flats to get a good root system. The plants are then placed in the field in rows 30 inches apart and set 18 inches apart in the row. They should be cultivated at least once a week and heads should be tied in as soon as they appear. All my ground is kept very rich, as I make it grow two crops a year. That is, a crop of lettuce or radish is first taken off the ground before the cauliflower is set out, so I use 40 to 50 tons manure per acre in the fall, plowed down, and follow this with 1,000 lbs. fertilizer in the spring.

For my later crops I use the Erford variety. Seed is sown outside on May 15 for a September crop. I make it a practice to sow twice as much as I think I require. By doing this and selling my extra plants, I make them pay for the cost of the seed, which with cauliflower is an important item. With these late plants, it is sometimes necessary to tie up the outer leaves over the

steady little flow. This must not be done when the tomato vines are wet. By this method Mr. Davis, last year, controlled the disease so well that he got full-sized fruits on the top trusses of plants that had been affected.

head in the late fall to keep out the frost.

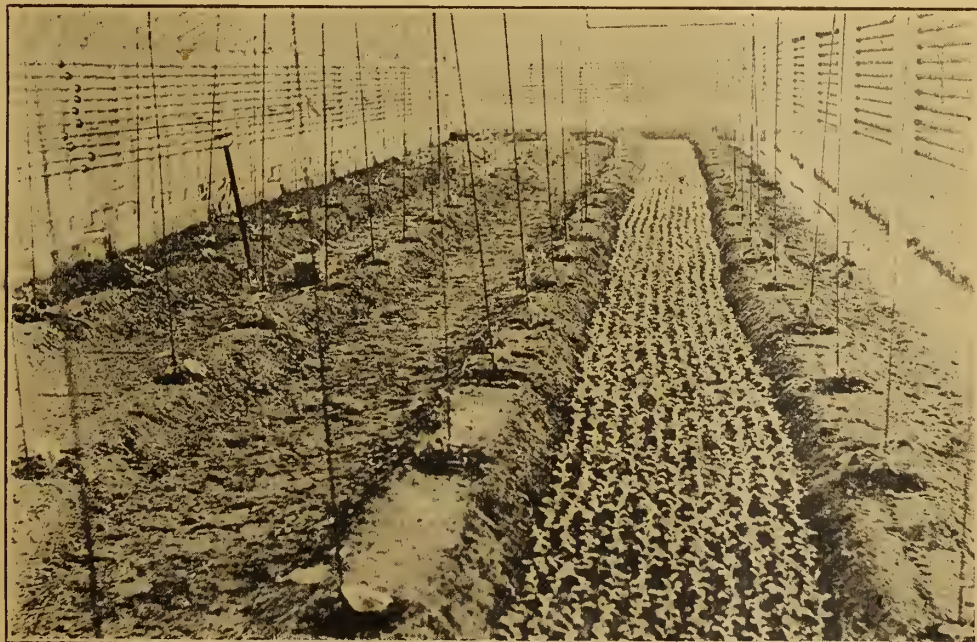
One of the most profitable crops of cauliflower that I grow is sown about the first week in June. These plants are for winter markets. About the last week of October when the heads have reached the size of a 50 cent piece, I take them up and set them in trenches with their roots in the earth. The long leaves are cut off about four inches above the flower. Hot bed frames are placed over the plants with blocks left under the corners of the frames to allow some circulation of air. As the winter comes on, I place boards and manure over the frames, covering them up to one and a half feet to keep out the frost. These plants grow up in the frames and make a profitable crop. You can place 30 to 40 dozen in a 12-foot frame and by the first of February they will be large enough to put on the market. I receive \$2.50 to \$3.50 a dozen for these plants.

## Growing Good Melons

"You must raise good melons if you are going to make anything out of melon growing at all," says V. Robinet, a successful melon grower of Tecumseh, Ont. Mr. Robinet plants his melons in April, placing about four seeds in a piece of sod four inches square in the hot bed. After the plants get four leaves, the two weakest plants are pinched out. The plants will not be ready for setting out in the field until about three weeks after planting.

In preparing the field for the plants Mr. Robinet digs holes 12 inches deep at intervals of six or seven feet, arranging these in rows so that cultivation is possible. Weeds cannot be tolerated in the melon patch. They shade the melons and so prevent even ripening. In the bottom of these holes, he places some well rotted manure, then puts in the soil, packs this firmly around the piece of sod containing the plants and usually places a little commercial fertilizer around each hill to give the plants a quick start.

After the melons have reached the size of a hen's egg, the vines are cut off two joints out from the melon. Only four melons are left on a vine with the ordinary varieties, such as the Salmon colored Ossage, Defender and Tip-top. With the Togo and other small varie-



Double cropping in the greenhouse as practised in the Niagara District.



## Grape Growing

Continued from Page 83.

In 1916 I tried sowing rape seed as a cover crop, because it was cheap, and other seeds were high, and the chances of getting a good catch on that soil in July, if the weather were dry, discouraged the use of high priced seeds. The rape came to nothing, however, because of a prolonged dry spell during August and September, and it was killed out by worms and drought. No humus, therefore, has been returned to the soil since the application of stable manure in 1911, 1912 and 1913, except the few weeds that have been plowed under. How to obtain humus is one of my problems. Shall it be by stock yard cattle manure about every fourth year, or by cover crops; and if by cover crops, what shall be used?

Lime has been applied twice, 1,000 lbs. of burned lime per acre in 1914, and one ton of pulverized lime stone per acre in 1917. I cannot state any definite result from the use of lime, but as there is little, if any, lime in the soil of that locality, and as it forms soluble calcium salts with the phosphates and other chemicals in the soil, and as it acts on the humus and renders the ground more easily pulverized, I think it should be applied once in three or four years.

### Crop Yields.

The crop yields for the past three years have been as follows: 1915, 20 tons; 1916, 19.8 tons; 1917, 21.8 tons. In 1916, the 1,000 new vines began to bear, and last year these vines had nearly reached full bearing. The annual loss by dead vines the past three years has been only 30 to 40 per season. The dead vines are removed each fall, and new vines planted each spring. I have been unable to find the cause of death of many of these dead vines, but I have dug up a number with roots eight to ten feet long, but dead the whole length, with perhaps a little fringe of fine rootlets at the extreme ends of some of the branches, just enough to cause the vine to send out buds in the spring, only to wither and die. The roots appeared to have been destroyed by root worm. A few vines, I believe, died of side-arm disease. To combat this cause I go carefully over the vineyard late in June, and look for the yellow, shriveled, crinkly-leaved canes, and cut the side arms back until the cut end shows no brown discoloration. I disinfect the pruning shears with kerosene oil before making the last cut.

My expense of production the past four years has been as low as I can well

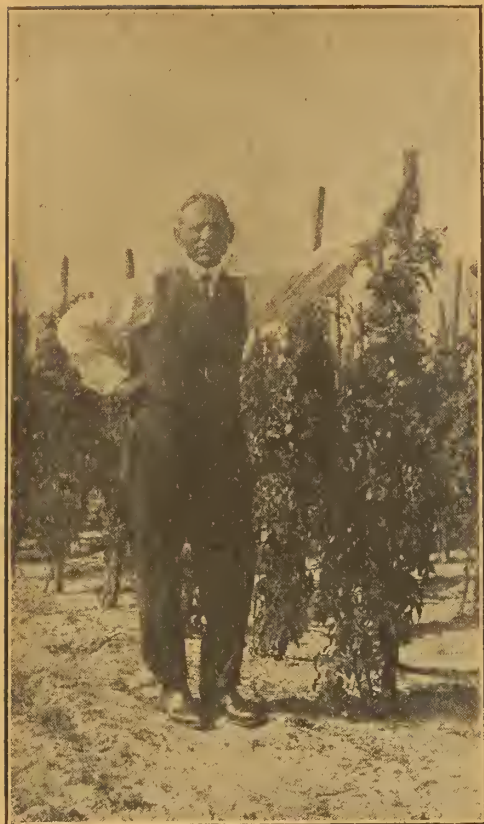
expect to maintain it—about \$390 per year, or \$48.75 per acre, including maintenance expense, labor expense and marketing expense. The maintenance expense includes taxes and insurance, fertilizer, repairs and vine renewal; the labor expense includes trimming vines, cleaning vines, setting stalks, tightening wires, tying vines, plowing, horse hoeing, hand hoeing, harrowing, spraying, and cutting weeds, but the last two years spraying has been omitted, and no stable manure or cover crops have been employed during the four years. Even with this reduced rate of expense I find, if I am to earn 6 per cent. on an investment of \$300 per acre, I must obtain about \$35.50 per ton for a 2-ton-per-acre crop, or \$26.75 per ton for a 2 1-2-ton-per-acre crop. The use of two car loads of manure once in four years would increase these prices about \$2.00 per ton.

During the seven years I find my profits have yielded 5 1-2 per cent. on an investment of \$300 per acre. During the first three years, while trying to get the vineyard on its feet, by the lavish use of stable manure, cover crops and fertilizer, my expense per acre for production averaged \$74.25, and during these three years the books showed a loss of \$740. The last four years, however, have redeemed the situation, showing a substantial gain of income over expenditure. Of course, you will understand that the profit obtained during the years mentioned has been mainly due to the greatly increased prices which have prevailed, coupled with the increase in tonnage per acre.

We may well ask, what has the future in store for the grape industry? What if national prohibition is established, as it practically has been in Canada (and I believe in it)? With the menacing lack of rail transportation such as we experienced last fall, with the increasing cost of production due to higher prices for labor and materials, what awaits the vineyardists of New York State and the lake regions? Surely we can not expect that the industry can carry any but the best vineyards. Those which produce inferior fruit, that can be used neither for grape juice nor the table, in all probability must be pulled out and turned to other use.

Whatever the future holds for us, let us face it manfully, do our best to bring success, then take what comes and thank God; for, as has been well said, "All honor to the man who tries."

Thinning is a matter of selection. Select the best plants and thin out the others, leaving good plants at the proper distance apart.



Tomatoes as grown in the garden of W. M. Grant, Blenheim, Ont.

ties you may leave up to a dozen to the hill. Two or three weeks before melons ripen Mr. Robinet begins to turn them, so that they will ripen evenly on all sides. When melons are well grown they make a good paying crop, selling at 25 to 50 cents each or \$2 a bushel wholesale.

## Acid Phosphate First

Acid phosphate has proved the most effective carrier of phosphorus in tests conducted for 22 to 24 years on the farms of the Ohio Experiment Station, proving superior in increasing crop yields to basic slag, steamed bonemeal and dissolved boneblack.

If acid phosphate is considered 100 per cent. effective, basic slag has averaged 92 per cent., steamed bonemeal and dissolved boneblack each 86 per cent. Basic slag has apparently been more effective on unlimed than on limed land, but not enough more to obviate the necessity of liming. These tests have been made on unlimed land, on limed soils and where raw phosphate rock has been used instead of lime.

The conclusion reached is that the grower cannot afford to pay more for a pound of available phosphorus in basic slag than a pound of the same element in available form would cost in acid phosphate, even for use on acid soil. The lime carried by the slag is not sufficient to offset its slight lack of effectiveness as a carrier of phosphorus.



# Transplanting Seedlings from the Hot-bed

W. E. Groves, Hamilton, Ont.

**W**HEN the month of April arrives it is safe to presume that growers who are alive to the importance of a good start, will have their hotbeds in operation, seeds sown, and many plants strong enough to handle. It is proposed to take up the treatment at this point. Good plants, well prepared soil, and an intelligent operator are essentials. Without them success is very doubtful. There can be no efficient transplanting without strong plants, and no real success unless plants are hardened ready for the process. This latter is much more important than it is sometimes thought to be. In nearly all cases more seed is sown than is necessary, the result being more plants in the hotbed than it can well accommodate until the time for planting out. A cold frame of however temporary a character is a great help. The available plants may be transplanted from the hotbed to the cooler quarters, allowing sufficient space for further development before the final shift. Beyond relieving the congestion, this method is an indirect preparation for the next transplanting by reason of the fact that the slight check caused by the operation tends to encourage the growth of fibrous roots, the advantage of which is too obvious to need stating. On all decent days at this period the covering may be removed by day, though it is wise to cover at nights. A real garden-lover's ordinary care along the lines suggested will ensure the first requisite for future success, a clean, sturdy, well rooted, well hardened plant.

Soil in good condition is necessary

and important. In the usual rush of spring work there is always a temptation, even in the smallest gardens, to overlook this fact, more failures resulting than we sometimes care to acknowledge. A good bed for the reception of seedlings should have several inches of clean, friable earth, making the actual operation a real pleasure. To secure this, means the application of the very first principles of good gardening—digging and cultivating—self-paying operations much more easily performed when the ground is vacant than afterwards. The wise grower will, whenever possible, dig his plot in the autumn, in which case a light forking over in the spring and a little cultivating will give the condition required. Soils dug in the spring claim more attention, and need to be worked two or three times to produce the correct condition. Where there is room to use it, a wheel cultivator is a good investment, being both efficient and a time-saver. But whatever tool is used it can be safely asserted that the more work done on the ground at this period the better will be the results. Spring is always a great weed growing time, and every cultivation means some destruction in this direction. By continuing this treatment right up to the planting date the soil is brought to the clean, workable condition so much appreciated by all true gardeners.

## When to Plant.

With so much depending on the district, and the season, it is difficult to fix an actual date for planting in the open. In some positions the end of

April may not be too early, while in others the end of May might be risky. A careful watching of the seasons will enable the grower to decide best for himself. If plants are tolerably plentiful, the gardener willing to take chances will naturally be early. On the other hand, where stock is somewhat limited it is wise to be patient. A good fact to remember, however, is that the early plant checked by weather is always overtaken by the plant put in later, and which has grown on without a check of any kind. When it is decided to commence operations, a day when drying winds do not prevail should be chosen, and a part of the day when the direct rays of the sun are not on the spot to be planted. It is well to avoid, if possible, planting when the ground is wet enough to be sticky. Though ideal atmospheric conditions may not always prevail, full advantage should be taken of the nearest approach to these.

The most commonly used tool for the work is, of course, a dibber, though for the operator who does not handle large quantities an ordinary garden trowel can be used, and makes good work. The tool, however, most appreciated by the worker will probably result in the best work. In all transplanting the operator who succeeds in getting his plants from the hotbed to permanent quarters with the most soil attached and in the quickest time procures the best results. More transplanting of every kind fails by roots being dried out than from any other cause, and every precaution taken to eliminate this danger is much to the good. The beds from which plants are taken should be moist at the time. Plants should be lifted with a fork or similar tool, carefully laid in the receptacle used for the purpose, sufficient quantity only being taken at one time to avoid the drying out previously mentioned. Though plants will doubtless grow in crooked and straight rows the worthwhile grower always aims at the latter method. The appearance is better, the work is more easily planned, and after culture much simplified. On large areas a marker of some sort is a necessity, but generally the faithful garden line suffices.

## Distances to Plant.

Opinions differ as to distances, and the individual grower has to decide largely for himself. Plants of the cabbage tribe may be planted in rows 2-2½ feet apart and about 20 inches apart in the rows. Beets, onions, lettuce and leeks will do well in rows 1-1½ feet apart and 3 to 6 inches in the rows. Celery in rows 2 feet apart and 6 to 8 inches in the rows should succeed. Tomatoes, when trained to one stem, should go in rows three feet apart



Gardens on the wind-swept prairies are so scarce they are greatly enjoyed by those who see them. This garden adjoins the C. P. R. station grounds at Moose Jaw, Sask., where thousands of travellers admire it each year.





A young tree that is an example of good pruning.

soil can be gradually hoed towards the plants in later cultivation. If fertilizer is applied at time of planting a little sprinkle in the drill is an easy and efficient method of application.

## April Vegetable Reminders

Le Roy Cady.

Give plenty of light to all seedlings in the house.

Smooth peas, radishes, lettuce and onions, may be planted.

Cabbage and cauliflower may be set out now.

Beets, carrots, peas and Swiss chard may be sown now.

Celery and tomatoes may be transplanted to the cold-frames.

Top-grafting of apple and plum trees may be done.

Cucumbers and melons may be started late this month on sods or in strawberry boxes in a hot bed.

The small white onion sets are best, although the yellow and red kinds may be used.

Radish, lettuce, smooth peas and spinach may be put in the ground now, if they have not been sown already.

Prune the blackberry bushes as soon as you can see where the flowers are borne.

Plant some Swiss chard. It is excellent for "greens" and may also be fed to poultry to advantage.

Plant a few currants this spring. No fruit is easier to grow or will give better returns for labor.

Early cabbage that has been well hardened off may be set out now. Set the plants down to the first leaves.

Watch the hot beds and cold frames carefully this month. It is an easy matter to spoil a crop of lettuce in the frames by letting it get too warm.

Do not take strawberry plants from an old bed to set a new bed, unless you can easily pick out the varieties and the plants are young and vigorous.

Parsnips and salsify are long season crops which delight in a cool temperature. Sow them as soon as the soil can be worked.

Don't sow seed too thick. Know its germinating power and sow at proper distance. The extra plants are only weeds.

Has the spraying of your fruit trees been attended to? Spraying at the proper time and in the right manner makes clean fruit more certain.

Do not be in a hurry to put out tomatoes. They should not be set out until the soil is well warmed and danger of frost is over.

Old onions planted the same as onion sets in the spring give good green on-

ions. In fact, the edible portion produced is often longer than in the set.

The high price of meat this year ought to be a reason for establishing a good garden. Try a good variety of vegetables, and cut down the meat bill.

Strawberry plants may be set out now. They should be from 18 to 24 inches apart in the row and the rows should be from four to five feet apart. The Senator Dunlap is a good variety.

Late this month, or early next, cucumber, melons, and even beans and corn may be started in pots, old strawberry boxes, or pieces of sod under glass, and transplanted after the danger of frost is past.

Place some of the straw removed from the strawberry plants between the rows. This makes a clean path to work on. Some straw may be left on the plants.

Strawberry plants should be kept cultivated. Keep all blossoms off, if you want the strongest plants. Ever-bearing sorts will need to have their blossoms picked only until July.

It is a good plan to dig out two or three inches of soil from the bottom of the cold frame and fill with thoroughly rotted manure or leaf mold, covering this with three inches of soil before transplanting plants to the frame. This light material makes it easy to take up the plants when it is time to set them in the field.

## Treating Potatoes for Scab

Douglas Maynard, Leamington, Ont.

Scabby potatoes are worth much less than good clean potatoes for cooking purposes because a considerable portion has to be pared off and the parings as a general rule contain the best part of the potato. Potato growers should therefore guard against scab when sowing their seed. Scabby seed may be treated by soaking for two hours in a solution of formalin, one pint of formalin to 40 gallons of water in a barrel. I change the water every day as it loses strength after a certain number of potatoes have been soaked in it.

Potatoes should not be treated with formalin unless they are scabby enough to warrant treatment. The formalin treatment will put back the growth of potatoes 10 days, because all the buds that have started will be killed by the same agent that kills the scab and growth will have to begin all over again.

One of the best mixtures in treating the potato beetle is made from one pound of Paris green, two pounds of the paste form of arsenate of lead and 40 gallons water. This will give the quick killing action of the Paris green and the sticking quality of the arsenate of lead combined.

and 1½-2 feet in the rows. Where space is limited this is the best method to follow in the growing of tomatoes. Vines, as cucumbers, melons, etc., require 3-4 feet of space between the rows and 1-2 feet in the rows. Though these are not all the vegetables raised in hotbeds for early transplanting they include the varieties more generally grown in this way. Intercropping, now so much followed, may necessitate some modification of these distances, but where this system is followed the plan to adopt is almost self-evident.

The rules for the actual operation of planting are few and simple, yet important. A hole deep enough for the roots to touch the bottom without any crippling of the stem of the plant should always be made and large enough to insert the plant easily. Firm planting is absolutely necessary. This is usually done by a pressure of the dibber, and care should be taken to avoid hanging the plant in the hole, which briefly means that the surface soil is closed in and no soil finds its way to the roots at the bottom of the hole. The dibber should be driven in at the side of the plant nearly to the depth at which it is planted, and if a slight cavity is left by this operation it will be quickly set right by subsequent cultivation. This cultivation can hardly be started too soon after planting. The hoe over the whole plot will not only give it a much more workmanlike appearance, but will in every instance help to give the plants a good start.

Some growers draw a shallow drill in which to plant many of the varieties named. The system is not recommended for heavy soil, but where the soil is sandy there are some advantages. The roots are placed a little deeper, and are naturally in cooler ground, while the



# Early Preparations for Vegetable Garden

THE beginner in home gardening, who has not yet been able to start, will be anxious to commence active operations. Don't, however, be too impatient and begin to work the soil before it is in good condition to be worked. Any amount of harm can be done to a garden by attempting to work it when the soil is wet and sticky. Instead of gaining a few days, one may be losing weeks, for neither young plants nor seeds will do well in soil that is not in what gardeners term "good heart." As soon as the frost is out, and the ground can be worked without becoming sticky, and adhering to the tools, operations should be commenced without a moment's delay.

If your garden is a small one, and was dug over, and the surface left rough, last fall, the surface will now only need breaking up with a fork. Should there be room for a horse to turn round in it, by all means have it ploughed. Ploughing breaks up the

proportion as you do so will the results prove satisfactory.

For general purposes, well-rotted barn-yard manure has no substitute, and if this was liberally applied in the fall so much the better. Avoid using fresh green manure in the spring, especially on heavy land, as it tends to make the ground still heavier, and conduces to sourness. Moreover the plant food therein contained is not in so assimilable a form as that of old well-decayed manure. Should good manure not be readily obtainable in your locality, you will have to resort to some of the chemical fertilizers. The ready mixed brands are perhaps the best to use, and when purchasing remember that as a general rule the higher the price of the fertilizer the cheaper is the plant food. All chemical fertilizers should be applied broadcast after ploughing, and in just that proportion given in the directions accompanying the same.

In the hurry to get the first plants

To the beginner the sowing of seed entails a lot of worry and anxiety, and not infrequently disappointment. Sowing too deep, and too thick, insufficient seed, or too much covering, and crooked, uneven drills are only a few of the things which help to discourage the beginner and scatter his vision of fresh green vegetables to the winds.

These were difficulties that were not easily overcome by the inexperienced when the only method of making the drills in which to sow the seeds depended on one's ability to steer in a straight line, and at a uniform depth, with the old-fashioned garden hoe.

Like all other businesses, gardening has been benefited by the march of progress, and the introduction of the combination seed-drill and wheel-hoe is one of the most useful implements that have been introduced. By all means have one, it will enable you to get your seeds in quicker, and with greater ease, but will do the job better than it can possibly be done by hand. It will open the furrow, drop the seed evenly, cover with earth, roll down the drill, and mark out the next row all in one operation, and almost as fast as a man can walk. And then by changing a few bolts and nuts you can convert this same machine into a wheel hoe, and you will save even more work in cultivating than you did in sowing the seeds.



Onion ranches, such as the one here shown, and operated by Chinese, are not an uncommon sight in British Columbia, where, owing to the labor shortage, the British Columbia Fruit Growers' Association has recently gone on record as favoring the admission of more Chinese to Canada during the war. Some Ontario fruit growers also favor such action. Photo taken at Armstrong, B. C. From G. T. Bartlett, Burnaby, B. C.

soil as no hand digging can. It should be stirred down to the subsoil—that hard layer of earth underlying and usually harder than and often of a different color to the rich top soil. If the garden is inclined to be wet and sour owing to inadequate drainage, and a capable man can be found to do it, have it "subsoiled" at the time of ploughing. "Subsoiling" is best done in the fall of the year, but it is better to have it done now than not at all.

## Fertilizers.

Before going into the preparation of the ground for sowing the seeds of those vegetables which are to mature where they are sown, the question of fertilizers requires some consideration. If you would have your garden feed you, you must feed it, and just in

out and the first seeds sown, the beginner is likely to hurry over the preparation of the seed-bed. Giving the seeds a right start in a properly prepared seed-bed is absolutely necessary if they are to make unchecked growth from the beginning. When the ground is in good condition twice over with a rake may be sufficient, but go over it until all lumps are broken, even if it takes a dozen times. Take a strip about as wide as you expect to plant at once, and rake it from one end. Make it just as smooth as possible with a backward and forward movement of the rake, taking care to rake up just as little sod, stones and other rubbish as possible. When the strip is thoroughly "fined" and as nearly table smooth as it can be made, you are at last ready to plant the seed.

## Pruning the Spruce Hedge

W. H. Foord, Toronto, Ont.

The best time to trim a spruce hedge is not in the early summer before the new growth starts, as some believe, as this procedure, if followed, will leave the hedge in a demoralized condition. Those who have studied the conifers closely are aware that they will not break or form buds on the old wood—like deciduous trees. Even very few professionals know how to prune an evergreen in its growth to produce their ideal form.

Pruning should not be done until after the new growth has commenced. When the new growth is from one to two inches long, pruning may be done, as at this stage of growth, an axil of buds will form at the point where the cut is made, and leave the full coat of green which is desired on the outside. The same applies to nearly all the evergreens. Pruning should not be done until the growth has started. If cedar hedges show a brown appearance, it is caused by trimming before growth has started, or close trimming after July 1st.

*Ampelopsis Engelmanni* (Engelman's Virginia Creeper) makes a good permanent wall cover. It clings to brick or stone well, if occasionally trimmed.



# The Canadian Horticulturist

COMBINED WITH

## THE CANADIAN HORTICULTURIST AND BEEKEEPER

with which has been incorporated  
The Canadian Bee Journal.

Published by The Horticultural  
Publishing Company, Limited.

PETERBORO AND TORONTO : ONTARIO.

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The Only Magazines In Their Field In the  
Dominion.

Official Organs of the Ontario Fruit  
Growers' Association, and of the  
Ontario, Manitoba and New Brun-  
swick Beekeepers' Associations.

1. The Canadian Horticulturist is published in three editions on the 25th day of the month preceding date of issue in three editions, as follows:

**FRUIT EDITION:** This edition is devoted entirely to the interests of the commercial fruit and vegetable growers of Canada.

**FLORAL EDITION:** This edition is devoted to the interests of amateur fruit, flower and vegetable growers, and includes a section for backyard gardening. It meets the requirements of town and city people especially.

**APICULTURAL EDITION:** This edition is known as The Canadian Horticulturist and Beekeeper, and is devoted to the interests of the beekeepers of Canada. In this edition several pages of matter appearing in the first and second issues are replaced by an equal number of pages of matter relating to the beekeeping interests of Canada.

### SUBSCRIPTION RATES

The subscription rates of the Fruit and Floral editions are as follows:

One year .....	\$ .50 cts.
Three years .....	1.00
To societies and associations .	.40 cts.
Three new subscriptions or two new and one renewal	1.00

The subscription rates of The Canadian Horticulturist and Beekeeper are:

One year .....	\$1.00
Three years .....	2.00

For foreign subscriptions and subscriptions in the city of Toronto, owing to the postal regulations, add 25 cts. a year extra for postage.

### CIRCULATION STATEMENT FOR MARCH.

Fruit Edition .....	1,661
Floral Edition .....	4,943
Beekeeper .....	1,363

Net Paid Circulation .....	7,977
Total printed .....	9,942

Advertising rates, \$1.40 an inch. Copy received up to the 20th. Address all advertising correspondence and copy to our Advertising Manager, Peterboro, Ont.

### OUR GUARANTEE

We guarantee that every advertiser in this issue is reliable. We are able to do this because the advertising columns of The Canadian Horticulturist are as carefully edited as the reading columns, and because to protect our readers we turn away all unscrupulous advertisers. Should any advertiser herein deal dishonestly with any subscriber, we will make good the amount of his loss, provided such transaction occurs within one month from date of this issue, that it is reported to us within a week of its occurrence, and that we find the facts to be as stated. It is a condition of this contract that in writing to advertisers you state: "I saw your advertisement in The Canadian Horticulturist."

Rogues shall not ply their trade at the expense of our subscribers, who are our friends, through the medium of these columns; but we shall not attempt to adjust trifling disputes between subscribers and honorable business men who advertise, nor pay the debts of honest bankrupts.

Communications should be addressed

THE CANADIAN HORTICULTURIST,  
PETERBORO, ONT.

## EDITORIAL

### War-Time Gardens

One of the greatest stumbling blocks to obtaining a maximum of results from the campaign for increased production from the backyard gardens and vacant lots of our towns and cities is the lack of knowledge on the part of thousands of would-be gardeners of how to proceed. Many who do make the attempt fail because of their inexperience. Thus not only are they discouraged from making further efforts, but their example proves discouraging to their neighbors and friends who feel inclined to make a similar effort.

What this class of person needs is a little direct personal assistance from people capable of directing their efforts. For this reason city and town councils, boards of trade, and other organizations interested in promoting increased production would be justified in employing one or more experts, as their opportunity for service may dictate, to aid would-be gardeners by giving them direct personal assistance at their homes or wherever their gardens may be situated. Most people would be willing to pay a slight charge for this assistance, and thus the work might be made largely self-supporting. It is of great importance that a beginner in gardening shall not make a mistake by endeavoring to use unsuitable soil, failing to prepare his land properly, choosing a poor location for the vegetables or fruit he plans to raise, and in other similar matters that are simple enough to those who have had experience.

Thousands of people who would like to start gardens this year are likely to be deterred through their consciousness of their lack of knowledge on essential points such as those mentioned. Did these people but know that there was an expert, whose services could be obtained by them for a slight charge, and who would give them directions in these matters, they would be emboldened to make the effort. Some organizations have already recognized this condition, and have arranged to give such assistance to their members. The work needs to be extended and made general wherever any comprehensive campaign is being conducted to increase production. A little help at the beginning of the season would be all that most of these people would require. Incidentally, they would be materially assisted in obtaining results were they encouraged or assisted to take a magazine like The Canadian Horticulturist, with its many timely and practical suggestions, and which is published at a price that they could easily afford. Both these matters deserve favorable action on the part of those interested.

### Proposed Legislation

For years the development of the fruit industry in Canada has been hampered by lack of legislation that has been much needed to rectify conditions that have developed with the growth of the industry. The announcement, therefore, that Hon. T. A. Crerar, Dominion Minister of Agriculture, proposes to introduce this needed legislation during the present session of Parliament is a most welcome one.

The multiplicity of fruit baskets, the variation in the size of fruit boxes, barrels and apple crates, the need for a proper defini-

tion of No. 3 fruit, the necessity for finding some means of dealing with shippers who persist in selling immature fruit or baskets of fruit not properly filled and other evils of this character have been a source of annoyance and trouble not only to the growers but to the consumers and fruit inspectors as well. Hitherto it has been found difficult, because of local conditions, for fruit growers in the different fruit provinces to agree upon measures of reform. The fact, therefore, that the fruit growers, representing all the fruit growing provinces, and the consumers on the prairies as well, who attended the special two days' meeting held in Ottawa last month to discuss these matters, were able to reach practically unanimous recommendations for legislation dealing with them is a matter for sincere congratulation. While the Minister of Agriculture may expect to meet some criticism when introducing legislation based on these recommendations he will have the assurance that the proposed reforms come as near meeting the requirements of the situation as can well be devised. He will be acting wisely, therefore, if he presses for legislation along the lines recommended.

The fruit growers who attended the meeting at Ottawa are to be congratulated upon the spirit of compromise they showed which alone made possible the large amount of work they accomplished. Should the recommendations be duly enacted into law the gathering will prove to have been one of the most important meetings that has ever been held in the interests of the fruit industry in Canada. It is particularly gratifying that we are likely to have, hereafter, a standard apple barrel and box for the continent, that fruit baskets are to be standardized, that the shipping of immature fruit is to be made a legal offence and that at last a definition has been adopted for a number three grade as well as for a new domestic grade.

### Organizing Ourselves

After all, the greatest problem we have to face is just the problem of self. It is the impulses and their control or lack of control, within our hearts, which make or break us. True, we may be able, with an excellent show of reason, to blame the events which come into our lives on circumstances beyond our control, but after all, when we are honest with ourselves, we are forced to admit that most if not all of our lack of real progress has been due to other causes. Many of us are prone to procrastinate. Things often work out unfortunately on that account. It may be that we do not show enough attention to details. Thus we may have been found unfitted, when opportunity knocked, to take advantage of it, or have suffered losses in other ways because of this weakness. Pride or a quick temper may create enemies for us where we need friends. Frequently the absence of a clear objective is what holds us back.

It is such influences as these and what we do with them, that really determine the measure of our success, both here and hereafter. Not until we have put forth every effort to overcome them and have suffered humiliating defeat after defeat, do we come to realize our own helplessness and begin to lose confidence in ourselves. Then we understand how true it is that "He who controlleth his spirit is greater than he that taketh a city."

Many books have been written which claim to teach us how to achieve success. We are directed how to control our thoughts, to conserve our energies, to draw upon the sub-conscious self and to follow



many other impressive methods that are guaranteed to obtain for us our heart's desires. But when we strive to follow these instructions we are only too likely to find ourselves endeavoring in reality, to lift ourselves by our bootstraps. Even should a measure of success come to us in ways such as these, it is sure to be at heavy expense in other directions. In time we will discover that something undefinable, but very real and necessary has dropped out of our lives.

The Apostle Paul understood all about this struggle. He knew, also, the secret of success. He explained our helplessness to obtain victory by showing that "we wrestle not against flesh and blood, but against the spiritual hosts of wickedness in the heavenly places." It is these great unseen forces that direct the thoughts and impulses that cause our defeat. None of us unaided are able to win the unequal struggle against them. What we need is a power greater than our own and greater than the forces that are arrayed against us to come into our lives from without and give us the victory. Where and how to obtain this power Paul also explains in 1 Corinthians 15:57. After all, the greatest book on success that has ever been written is just the Bible. Its secrets are offered freely to all who will earnestly seek them. There are times above all times when we need the sustaining influence of just such secrets in our lives. Then we will be able to organize ourselves on a true success basis.

The Dominion Food Controller urges us to eat more vegetables in order to save exportable food for the soldiers and civilian populations who already know the meaning of food shortage. Potatoes, carrots, turnips, onions and many other vegetables may be used in numerous nourishing and palatable dishes. They supply elements required by the human body, and could be used with advantage freely in combination with much smaller quantities of bread, meat and dairy products than are now consumed. Backyard and vacant lot gardening provides a means of supplying these products.

## Montreal

Montreal.—At the annual meeting of the Montreal Horticultural Society and Fruit Growers' Association of the Province of Quebec, which was held Feb. 27, Secretary A. J. Bowles reported that the garden competition had proved an interesting feature of the season's work. Prizes were offered for city gardens, front gardens, suburban gardens, backyard gardens, special gardens.

Prizes were presented for a collection of vegetables, 12 square feet, grown in the Khaki League gardens. This competition, said the Secretary, brought out the most creditable exhibits possible.

The society decided to take over the Khaki League gardens for 1918, subject to the approval of the Khaki League.—W. J. Perks.

An enterprising citizen of Peterboro, Ont., Mr. Robt. Neal, has offered two prizes to the children of each of the public schools of the city who make the best bird houses this spring. The contest is likely to arouse great interest. Could not a number of our horticultural societies encourage some of their members or citizens to follow this good example? Anything that can be done to teach children the importance of protecting and encouraging bird life will prove beneficial.

## : SOCIETY NOTES :

### A Great Response

Mr. F. A. Abraham, chairman of the Vacant Lot and Home Garden Section of the Canada Food Board, writes The Canadian Horticulturist that it looks as if garden production this year in Canada will be double or treble that of last year. He is in receipt of sheaths, of letters from municipalities from one end of Canada to the other stating that committees are taking hold of the problem with greater energy than ever before.

### A National Campaign

In connection with the effort that is being made by the St. Catharines Horticultural Society to increase production this year, Mr. H. J. Moore, of Queen Victoria Park, Niagara Falls, has offered to give an evening each week for advisory and demonstration purposes in connection with the community gardens. Assistance will be invited from those who will be willing to aid those who take up allotments in the community gardens.

### Interesting Meetings

The directors of the Guelph Horticultural Society have been holding an unusually interesting series of illustrated lectures for this winter. The subjects have been as follows:

January 30—What to grow in a war-time garden.

February 6—Starting early plants.

February 13—Manures and fertilizers for a war-time garden.

February 20—Planting and transplanting.

February 27—Preparing the land.

March 6—Insects and diseases affecting garden crops.

The speakers have been Professors A. H. MacLennan and J. A. Neilson, of the Horticultural Department of the Agricultural College.

### An Advertising Campaign

The St. Thomas Horticultural Society continues to blaze out new methods and lines of work with the same enterprise that has made its work so successful during the past five or six years. This year it has signed a contract with one of the daily papers of the city to publish a different advertisement in every issue of the paper for a year. Special attention will be given to greater production and backyard gardening. Two sample advertisements are herewith published.

lished. Dr. Bennett, the President, writes The Canadian Horticulturist that they believe that constant, readable, entertaining advertising will well repay them. Although the Society's receipts and expenditures last year were approximately \$6,000, they hope to exceed that record this year. The society has secured several thousand roses, mostly Hybrid Teas for early April delivery; also a splendid assortment of Canadian grown Gladioli, shrubs, peonies and other plants. Among the new roses secured are Nellie Parker, Donald McDonald, Gorgeous, Primrose, Sarah Yates, Rose Park, and Ophelia. They plan to form a rose society shortly and to affiliate with the American Rose Society.

### Sample Advertisements

The following are two samples of the advertisements that are being published daily this year in one of their local papers by the St. Thomas Horticultural Society:—

#### OUT-OF-TOWN PEOPLE

are frequently inquiring if membership in the St. Thomas Horticultural Society, and its benefits, are extended to them. Certainly. Mail your dollar fee, and tell us what option you want—we have magnificent roses, gorgeous peonies, beautiful gladioli, and flowering shrubs. Your dollar entitles you to a selection free, and any additional stock at cost.

ST. THOMAS HORTICULTURAL SOCIETY

Dr. F. E. Bennett.  
President.

R. W. Johnson  
Sec. Treas.

#### Back Yard Gardens

Put your garden on an efficiency basis as never before, thinking always of how your efforts affect the country and its conduct of the war rather than how the work benefits you, individually.

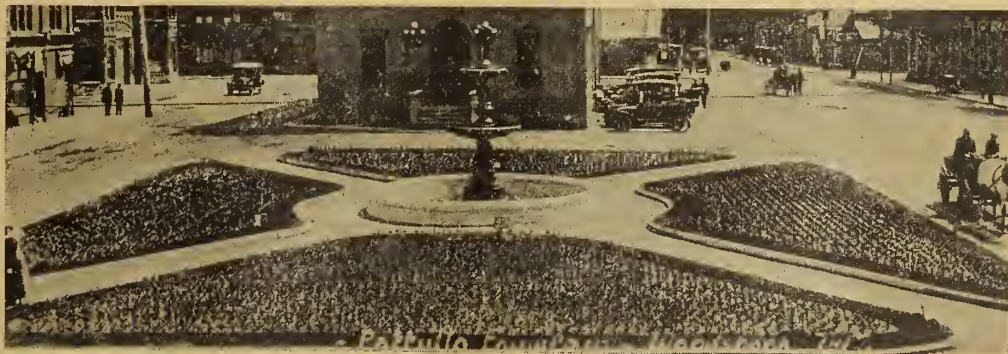
Your plans should include membership in

St. Thomas Horticultural Society

Fee \$1.00 per year.

Dr. F. E. Bennett  
President.

R. W. Johnson  
Sec.-Treas.



The Pattullo Fountain, Woodstock, Ont. The flower beds are maintained by the local horticultural society. They contain between eight and nine thousand tulips.



# Important Changes Proposed in Fruit Packages and Laws

American Apple Box and Barrel Likely to be Adopted. Two New Grades of Fruit Defined.  
Fruit Baskets to be Standardized. Shipping Immature Fruit to be Penalized.

**W**HAT promises to prove a memorable gathering of fruit growers was held in Ottawa, March 26th and 27th, when representatives of the fruit-growing interests in the leading fruit provinces of Canada met at the invitation of the Dominion Fruit Commissioner, to recommend long-deferred legislation in the interests of the fruit industry. A surprising amount of important work was accomplished during the two days' series of meetings. More real progress was made in harmonizing conflicting views, and thereby preparing the way for definite legislation dealing with important matters than has been accomplished in the past twelve or fifteen years, and at several previous conferences a number of Government officials and basket manufacturers were also in attendance.

In opening the conference, Mr. D. Johnston, Dominion Fruit Commissioner, explained that a need for important legislation existed at the time the war broke out, but owing to the war, the Government did not feel disposed to take action. As some of these matters now require action, he had taken the matter up recently with Hon. T. A. Crerar, Dominion Minister of Agriculture, who had approved of the holding of a meeting of representative fruit growers, and given his assurance that he would be willing to press for needed legislation at the present session of Parliament.

The fruit growers who attended the conference were unanimous in their desire to allow minor differences of opinion to drop out of sight in order that definite results might be accomplished. This accounted for the unusual results that attended their deliberations. The following is a brief statement of some of the important decisions reached.

## A New Barrel Standard.

It was decided to recommend the Government to make the American apple barrel the standard barrel for Canada also. At present there is no standard barrel for Canada other than a requirement that the barrel shall contain as nearly as possible, 96 quarts, and be not less than 26¼ inches between the heads. The result has been that Nova Scotia has used a small barrel, while Ontario has used a considerably larger barrel, having 30 inch staves. The new American barrel is slightly smaller than the Ontario barrel, and a little larger than the Nova Scotia barrel. Its staves are 28½ inches in length, the distance between heads 26 inches, and the circumference at the middle, 64 inches. The adoption of this barrel will give a uniform apple barrel for the whole continent.

## The New Apple Box.

For some fifteen years the standard Canadian apple box has been 10 x 11 x 20 inches. Its use has been obligatory for the export trade, but not for the domestic trade. In British Columbia many growers have used what is known as the Washington or Oregon box, and what is sometimes called the American box. They have preferred it to the Canadian box, and its use has steadily grown in favor. It was decided to make this the standard box for the domestic and export trade in Canada. Its dimensions are 18½ x 11½ x 10½ inches. It is an easier box to pack and to ship.

## A Standard Apple Crate.

During the past four or five years a new package has come into use in Ontario in

what is known as an apple crate. This is not a closed package, the sides being composed of slats, and thus it has not come under the regulations of the Inspection and Sales Act, relating to closed packages. Hitherto there has been no standard apple crate, and many different kinds of crates have been used. It was decided to recommend that a standard apple crate be established which shall conform in dimensions and size to the standard apple box, with slats at least three-quarters of an inch apart.

## Standard Baskets.

Hitherto, a great variety of baskets have been used, more particularly in the sale of tender fruits, such as peaches and grapes. These baskets have been made in many different ways, of different sizes and material. A committee was appointed some years ago by Ontario fruit growers to take steps to standardize the baskets that should be used. Mr. J. R. Hastings, of Winona, was appointed chairman. The manufacturers were consulted. It was understood the manufacturers were in favor of action being taken as recommended by the committee, but their representatives at the meeting at Ottawa objected to the making of the proposed changes. The fruit growers listen to their case, but decided unanimously to disregard their objections, as they felt they were exaggerated and, for the most part, not justified. It was decided to recommend that hereafter there shall be only two legal sizes of baskets, one an 11-qt. basket, and the other a 6-qt. basket. The dimensions of the bottom, handle, veneer, etc., will all be stipulated. This will do away with the nine-quart basket, which has been extensively used.

## Peach and Pear Boxes.

The following three sizes of peach boxes were agreed upon, these to be the only legal boxes for use in Canada: one, 18 x 11½ x 4½ inches; one, 18 x 11½ x 4 inches, and one, 18 x 11½ x 3½ inches. It was also decided to recommend that the legal Ontario pear box should be 18 x 11½ x 7¾ inches (inside measurement). The legal prune box was set at 18 x 11½ x 3½ inches.

## Grades of Apples.

Under the Fruit Marks Act at present three grades of fruit are defined: a fancy, a number one and a number two. It was decided to eliminate the fancy grade, as it has been found to have no commercial importance. Number one grade will remain as it has been hitherto. The following definition was prepared for number two grade: "No. 2 quality shall not include culls and shall be sound, of nearly medium size and some color for the variety, and be not less than 85 per cent. free from scab, worm holes, bruises and other defects, and shall be properly packed." Hitherto the percentage has been 80 per cent., and there was no color requirement.

It was decided to establish a new grade, to be known as a Domestic Grade. It will be defined as follows: "Such fruit shall not include any culls, be sound, of not less than nearly medium size for the variety, 80 per cent. free from worm holes, but may be slightly affected with scab and other minor defects and be properly packed." It was decided also to establish a number three grade, which will be defined to include no culls and be properly packed. The definition

of the word Cull was left to be prepared by the Dominion Fruit Division.

## Properly Filled Packages.

Considerable trouble has been caused in the past through some growers marketing packages of fruit that have not been sufficiently well filled. In some cases also, retailers and dealers have re-packed well-filled packages and made a larger number of packages by not filling the packages. It was decided to recommend that all packages of fruit offered for sale shall be well and properly filled at point of shipment, and in cases where fruit inspectors find evidence of under-filling, they shall have the right to weigh or measure the contents of the package at the point of shipment, in order to determine whether or not the package had been well and properly filled.

It was also decided that in cases where packages are re-packed for sale they shall be marked as such, and bear the name of the re-packer. No grades or marks on the package shall be altered except on authority of the Dominion Fruit Inspector. In cases where re-packing is practised, all former marks on the package must be obliterated.

## False Marking.

It has frequently occurred that fruit inspectors have found packages of fruit not properly marked. They have not had authority to re-mark these goods so as to show their correct grade. All they could do was to mark the package "wrongly marked." Even after they have been so marked the dealers have often been able to sell the fruit as though it had not been wrongly marked. It was decided that when an inspector finds packages of fruit falsely marked at the shipping point, he shall have power to remove the original grade marks and place the proper grade marks on the package, and that he shall also have power to hold such fruit until proper marking is done.

## Bushel Basket.

Canada has not had a standard bushel basket hitherto. It was decided to adopt the American Standard bushel basket.

## Immature Fruit.

Great injury has been done the fruit industry through some growers shipping immature fruit early in the season when prices were high. It was decided to ask for legislation which will provide that no immature fruit shall be marketed except where the demand is legitimate, nor any fruit that is so materially diseased, wormy, or otherwise depreciated so as to be unfit for consumption. Immature was defined to include all fruits that are unsuitable for consumption, because of lack of those desirable and necessary qualities of a culinary or dessert product.

## Open Boxes.

Hitherto a great variety of boxes have been used in the marketing of small fruits. It was decided to recommend three sizes only; the four-fifths quart, the two-fifths quart and the British Columbia pint box made square. These will be the standard sizes for domestic trade only.

It was decided not to recommend any legislation that will prevent United States fruit entering Canada in packages the use of which may not be legal for Canadian growers, and that basket, box and barrel manufacturers should be allowed ample time to dispose of stocks on hand.



A. E. AMES & CO.  
Toronto Montreal  
New York

## IT WOULD BE IMPOSSIBLE

to indicate a more suitable security to serve as a nucleus around which to build up a substantial investment than

## CANADA'S VICTORY BONDS

Your orders would be appreciated.

**A. E. AMES & CO.**

ESTABLISHED 1889

Members Toronto Stock Exchange.

### Fruit Growers Who Attended.

The sessions of the committee were presided over by the Dominion Fruit Commissioner, Mr. D. Johnston. Those present included, from British Columbia, C. E. Barnes, Walachin; J. E. Reekie and G. A. Chick, Kelowna; E. Trask, Oyama; Prof. F. M. Clement, Vancouver; H. C. Airth, New Westminster. Prairie markets, L. E. Mutton, Regina. Ontario, R. W. Grierson, Oshawa; W. F. W. Fisher, Burlington; F. A. Sheppard, St. Catharines; Dr. A. J. Grant, Thedford; S. H. Rittenhouse, Jordan Station; P. W. Hodgetts, Toronto; F. Carpenter, Grimsby. Quebec, Prof. T. G. Bunting, Macdonald College; Peter Reed, Chateaugay Basin; Rev. Father Leopold, La Trappe. New Brunswick, A. G. Turney, Fredericton; Nova Scotia, F. H. Johnston, Bridgetown; F. W. Bishop, Paradise; A. S. Banks, Waterville; M. K. Ellis, Port Williams; A. E. McMahon, Berwick. Prince Edward Island, A. E. Dewar, Charlottetown. The basket manufacturers present included A. W. Reid, Beamsville; W. F. Thomas, St. Thomas; J. H. Baskette, of Owen Sound. Others present included J. R. Hastings, of Winona; W. T. Macoun, Ottawa; and Fruit Inspectors P. J. Carey, Toronto; C. W. Baxter and C. H. Snow, Ottawa; F. H. Steele, Winnipeg; R. G. L. Clark, Vancouver; G. H. Vroom, Middleton, N. S.; and Messrs. Geo. MacIntosh and F. H. Grindley of the Dominion Fruit Division. Lack of space prevents a more extended report of the discussions being given in this issue. Further mention of them will be given in the May issue.

If you were to ask me which box I liked best, the Canadian or the Oregon box, I would say the American box, because, in my opinion, it carries the fruit in better condition.—D. Johnson, Dominion Fruit Commissioner, Ottawa.

## Gladiolus "Prince of Wales"

A clear grenadine pink or deep buff with throat markings of a deeper tone. The tips of petals shaded darker—very large flower, eight or ten blooms open at one time. A novelty of great value. This gladiolus is sold by different growers at from 25c to \$2.00 each. Our price is 25c each; 25 bulbs \$5.00.

**H. P. VANWAGNER**

R. R. NO. 5 HAMILTON, ONT.  
Grower of Best Gladiolus—Paeonies.

## DOUGLAS GARDENS

### Catalogue for 1918

Contains a complete list of a number of new plants that will interest customers this season.

A fine assortment of Paeonies. Perennial plants of all kinds. Shrubs and roses.

### BEDDING PLANTS

Standard Fuchsias from 2 to 3 feet. Carnations of the finest varieties. Heliotrope, Cowslips, Salvia, Salpiglossis, Snapdragons, Pentstemon, Lobelias, Pansies, Ageratum, Verbenas, Asters and Stocks.

**ERICK ERICKSON**

OAKVILLE - ONTARIO

# Ship YOUR Fruit AND Vegetables TO Toronto

Toronto is the best market for Fruit and Vegetables in Canada. It consumes the most, demands the best goods and pays the best prices.

White & Company are well known in Toronto. We are one of the largest and oldest commission houses and so can offer you the best facilities for disposing of your produce on this market. Our wide connection built up from satisfied customers, ensures you quick sales, top prices and prompt returns.

Our customers are largely the better class of green grocers who supply the best families. Thus we want quality, regardless of price.

Write us to put your name on our list for regular market reports and mention that you want shipping stamps.

**White & Co., Limited**

Front and Church Sts., TORONTO, ONT.

Wholesale Fruit Importers and  
Commission Merchants

# — REX —

## BRAND

*Lime and Sulphur* *Arsenate* *Calcium*  
*Solution* *of Lead* *Arsenate*

Crop protection means crop production. Twenty-five per cent of the country's fruit crop is destroyed annually by fungi and insect pests, and the loss is a serious one to the nation.

This is the time to prepare for the coming season's offensive.

REX Brand materials have been given a severe test by fruit growers and orchardists in Canada and the United States, and have accomplished the best results.

### If You Want More Fruit and Better Fruit

send us a card for the booklet "What Constitutes Quality and Merit in Spray Materials."

We are the Canadian Sales Agents for the "Friend" Manufacturing Co., of Gasport, N.Y., manufacturers of the world famous NuSYSm Spray Outfits, and the NuSYSm Spray Gun, the machines that have revolutionized spraying.



**Canada REX Spray Co., Limited**  
Austin McGlennon, Manager BRIGHTON, ONT.





*The*  
**SHERIDAN  
NURSERIES**  
*Shrubs & Perennials*  
34 North St.  The Nurseries  
Toronto. Sheridan Ontario.

## Niagara District Notes

By F. G. H. Pattison, Winona, Ont.

Peaches have suffered considerably from the severe winter, although there appear to be enough healthy buds left to give a crop. Localities, however, vary considerably. In some places the more tender varieties have been severely affected. Nor have sweet cherries and Japanese plums escaped. In the Grimsby-Winona section, serious injury is reported in many orchards to Governor Wood and Black Tartarian cherry buds. Windsor and Yellow Spanish are not much injured. Burbank plums are also reported to be severely hurt. There is little doubt also that a certain proportion

of trees have been injured and in some cases killed by the unusual severity of the winter.

A report from Beamsville says that pruning is well advanced there. The district around St. Catharines reports grape pruning further behind than usual.

Throughout a large portion of the winter fruit growers who have teams have found profitable employment for them at the new aviation grounds at Beamsville.

During 1917 the Vineland Co-Operative Company sold fruit to the value of \$135,000, making a gross profit of over \$8,000. They also handled the following supplies: Coal, flour and feed, baskets and crates, sulphur, fertilizers, grape twine, basket fasteners, lime, arsenate of lead and bluestone, to the value of \$62,000, on which they made a gross profit of \$5,000. All this was done with a paid-up capital of less than \$6,000. According to manager W. M. Gayman, their chief aim has not been to pile up a big profit, but to sell their supplies as cheaply as possible. To become a member of this association a grower must invest \$200 to \$500 in stock, according to the size of his farm. On this they pay him seven per cent. per annum. They have tried to impress on their member-growers the necessity of grading their fruit well, and report that they have succeeded in most cases. They have a law demanding that members sell all their fruit through the company, and also buy all their supplies.

The matter of the proposed prohibition of the manufacture and sale of native wines was considered at a meeting of fruit growers held in Grimsby, and a resolution was carried unanimously that the Niagara Peninsula Association should be requested to send a delegation of at least 200 to Ottawa to protest against the proposed measure.

On the evening of March 12th, a largely attended meeting of fruit growers was held at Winona. Resolutions were passed: 1. Approving of the proposition of President Kelly, of the Hamilton Board of Trade, regarding releasing men from the factories to work on fruit and general farms. 2. Disapproving of the proposed Daylight Saving Bill, on the grounds that owing to the heavy dews during the summer and fall months, it would cause a waste of time, disarrange the farmers help, and lessen production, instead of increasing it; and supporting 3. The Niagara Peninsula Fruit Growers' Association in sending a strong delegation to Ottawa to protest against the proposed prohibition of the manufacture and sale of native wines.

At the annual meeting of the Dominion Canners' held in Hamilton, in March, the president's report stated: "Our stocks of canned goods on hand are unusually light, and we will probably go into next season with little or nothing in the shape of canned good. As to export business, last year we advised you that we were diligently working up our export trade, and this has been of material assistance to us, but owing to transportation and foreign financial conditions, this trade is now practically cut off. Labor, as you know, has advanced considerably, tins have also greatly advanced; in fact, all those materials that enter into the pack, such as fruit and vegetables, range from 50 up to 100 per cent. higher. Therefore, we cannot for the present expect to sell goods at normal prices."

### Bedding and Vegetable Plants

Watch for our advertisement in the May issue.

THE MITCHELL NURSERY CO.  
MITCHELL - ONTARIO

### Butterfly Flowers

These are the airiest and daintiest flowers imaginable, especially adapted to bordering beds of taller flowers and those of a heavy growth. The seeds germinate quickly and come into bloom in a few weeks from sowing. The florescence is such as to make the plant a veritable pyramid of the most delicate and charming bloom.

**FREE!**

One 15c. package will be sent FREE to each person sending us a postcard with name and address. A copy of our new 80 page catalogue will accompany it, from which you can choose your spring requirements.



Butterfly Flower

**DOMINION SEEDS, Limited**  
LONDON - ONTARIO

Be Sure to say you saw this offer in The Canadian Horticulturist

### Bruner Onion Weeder

Onion growers, we send this machine on **FREE TRIAL**, if you are growing half acre or over of onions. Don't fail to investigate about this great labor-saver.

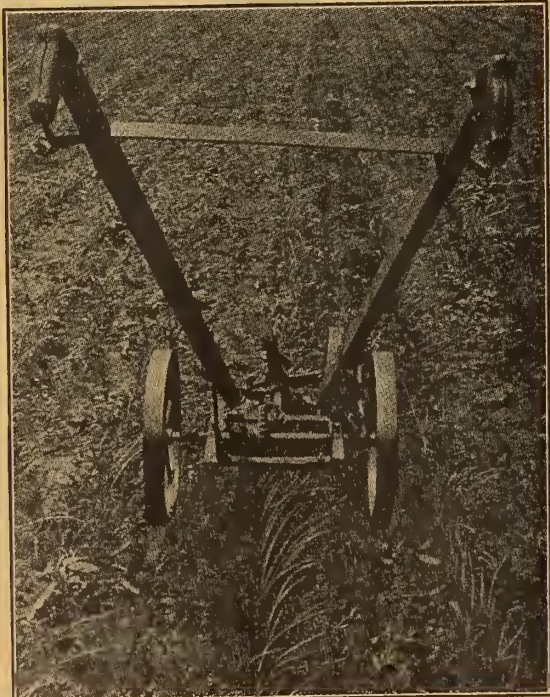
Gets the weeds that are directly in the onion row.

Write for complete information.

**R. G. Bruner Mfg. Co.**

Box 157

RUTHVEN, ONT.







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## ORDER YOUR TYPEWRITER NOW

THERE is now a shortage of typewriters never before experienced in the history of the business. And it will be still more pronounced.

Prices have not yet advanced. In view of this and because of unavoidable delays in delivery, it is good policy to anticipate your typewriter requirements and order now. Rebuilt Underwoods from \$60; other standard makes from \$30.

## United Typewriter Company

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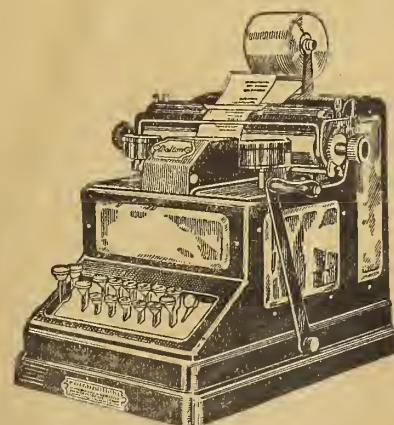
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OFFICE OUTFITTERS, PRINTING, EMBOSSING, LITHOGRAPHING, ETC.

SHOULD you have an adding machine, or another adding machine?

The DALTON (for adding and calculating) is startling in its simplicity. It has 10 keys instead of 81. It multiplies, divides, subtracts—fractions as readily as whole numbers. The ten-key keyboard lessens the possibility of error; makes possible the touch method of operation which prevents the fatigue due to constant looking back and forth from copy to keyboard. It is the fastest listing adding machine. Send for booklets.





**GRAY CAUCASIANS**

Early breeders, great honey gatherers, cap beautifully white, great comb builders, very prolific, gentle, hardy, good winterers. Untested \$1.25, select untested \$1.50, tested \$1.75, select tested \$2.25.

**H. W. FULMER**

POINT PLEASANT

PA.

**PREPAREDNESS PAYS**

Order now and avoid spring rush. Bee supplies, books, magazines, 1917 prices withdrawn. Write for prices until new catalogue is issued.

**THE ROOT CANADIAN HOUSE**

73 Jarvis Street - Toronto, Ont.

**Organizing for Production**

From one end of Canada to the other, in fact all over the continent, enthusiasts are at work endeavoring to promote increased food production through vacant lot and back-yard gardens. Municipal bodies, horticultural societies, rotary clubs, women's Institutes and many other organizations are busily at work. Because of the experience gained last year better results should be realized this season. In spite of the experience gained, however, the probabilities are that many of those interested will fail to achieve the results they desire because of a failure to carefully plan and

supervise the carrying out of the numerous factors that are essential to success.

In the United States, where vacant lot gardening was practised in a number of cities even for years before the war, the experience gained has shown that the following factors have an important bearing on the successful prosecution of any public campaign for increased production. Our Canadian organizations which are so busily at work will do well to bear them in mind.

First, secure enough money, either by municipal grants, private subscriptions, or in other ways, to insure your being able to carry the campaign to a successful conclusion.

Second, list all available lots and vacant land, and also obtain a list of all who want gardens. It often happens that many who would like to garden are unable to do so owing to lack of land when land may be available near them without their knowledge.

Third, if possible secure the services of an expert to supervise the work from April to July at least. Where funds do not permit of this, divide the municipality into districts and call for volunteers who will undertake to give suggestions and aid to those needing it living in these districts.

Fourth, plan for co-operative ploughing. Much needless expense, worry and time may be saved by a little co-operation in this way.

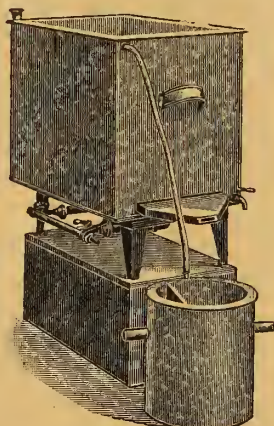
Fifth, ensure the growing of enough good tomatoes, cabbage and other plants to meet the needs of those wanting them. Too often the plants offered for sale at stores are crowded in boxes, stunted and almost worthless, and are purchased by amateur gardeners because they do not know what good plants really are.

Sixth, plan to secure an abundant supply of manure. The difficulty of obtaining this essential is a serious handicap in many gardens.

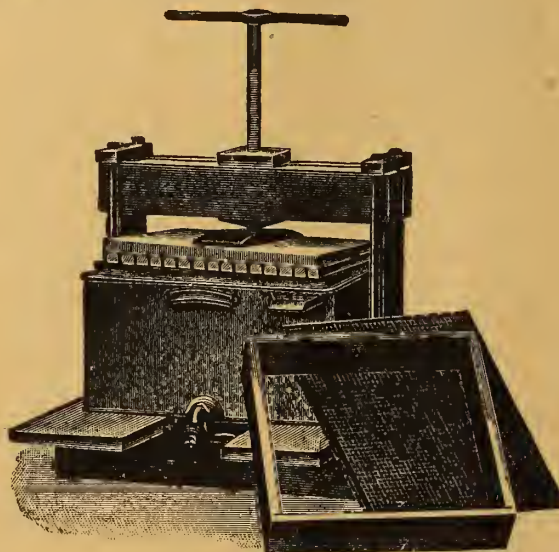
If the foregoing six points are carefully watched and provided for they will go far to insure a successful campaign. The passing of the Daylight Saving Bill by parliament is going to ensure thousands of people being able to spend more time in their gardens this year than ever before and thus will encourage more beginners undertaking gardening this year than otherwise would.

Fruit spurs are easily recognized by their short, scraggy appearance on the branches. Leave them intact.

## SAVES HONEY SAVES WAX SAVES MONEY



The Armstrong Cappings Melter.



The Sibbald Wax Press.

Two machines that every up-to-date beekeeper should possess. Beeswax wanted for cash or in exchange, or we will make it into Comb Foundation by Weed Patent Process for you. Early cash order discounts and prompt service NOW.

**The Ham & Nott Company, Limited**  
Brantford - - - - - Ont.

# Notice to Canadian Beekeepers

We are booking orders for combless packages for April, May, June delivery at the following prices:

- 1-lb. package, \$1.80 each, twenty-five or more, \$1.70 each.
- 2-lb. package, \$2.90 each, twenty-five or more, \$2.80 each.
- 3-lb. package, \$3.90 each, twenty-five or more, \$3.80 each.

If queens are wanted add 75c each to above prices. As we will need all of our untested queens for our package trade, therefore we will have nothing to offer before June 1st but tested and breeding queens, which we quote you as follows:

Tested Queens \$1.50 each. Breeding Queens \$3.00 each.

It has been stated by one of our journals that we have been shipping a frame of brood, or a piece of comb, in our packages. We wish to state that this is false.

We guarantee safe arrival to your express office. Our bees are free from all disease and are of the best Italian strain.

### References.

Apalachicola State Bank and Bay City Packing Co., of Apalachicola, Fla.

If you send post office money order have same drawn on Apalachicola, Fla.

**MARCHANT BROS.**

**Sumatra, Fla.**



## Annapolis Valley Notes

Eunice Buchanan, Berwick, N.S.

Apples in March dropped to \$1.00 and \$1.50 a barrel for No. 1 and No. 2's of—Nonpareils, Ben Davis and other fruit now in season. Owing to the deficiency of cars, the fruit did not move as freely as it could have been sold. Other reasons were, the severe weather, and apples accumulated on the packers hands, while many contracts were canceled. At the beginning of the season, inexperienced buyers paid big prices for inferior varieties of apples and forced abnormal prices; now the market has gone to the other extreme.

Up to the time of writing, (March 18th), the weather has continued steadily severe, snow is still falling. When weather permits, pruning it attempted. Special meetings have been held by the Food Controller, urging us to make renewed efforts to produce more food this year.

Use rubber boots when pruning, so as to avoid damage to the trees.

## JONES-WEED PROCESS COMB FOUNDATION.

We have at all times a good stock of all grades of Jones-Weed Process comb foundation and we solicit your orders. Customers' wax made up by same process if desired. We try to ship telegraph or telephone orders same day as received.

More Beeswax Wanted—Highest Price Paid

**F. W. Jones & Son**  
Manufacturers of Beekeepers' Supplies  
BEDFORD - - QUE.

## An Opportunity for You.

Thousands of people in towns and cities all over Canada are starting gardens this year for the first time, because of the world-wide food shortage. This is creating a great demand for reliable information on gardening subjects—just such information as is contained in the floral edition each month of *The Canadian Horticulturist*.

The very low subscription price of *The Canadian Horticulturist*, only 50 cts. a year, 3 years for \$1.00, or 6 months for 25 cts., places it within the reach of even the poorest. Thousands of these people probably have never even heard of *The Canadian Horticulturist*. Were they to be shown a copy many would subscribe for it immediately. This situation offers a splendid opportunity to our subscribers and others to help the cause of increased production by assisting to increase the circulation of *The Canadian Horticulturist*.

We desire to secure circulation representatives in all the leading cities, towns and villages of Canada where increased production is being advocated. Very attractive commissions will be paid for new subscriptions. Sample copies will be sent free on request. Write us for further particulars. Agents wanted also in the fruit districts.

THE CANADIAN HORTICULTURIST  
Peterboro', Ont.

## Apples in Storage

The following is an approximate estimate by the Dominion Fruit Division of the apples in store at the following points on March 30th, 1918, and on the same date in 1917:—

Place	1918.		1917.	
	bbls.	boxes.	bbls.	boxes.
Nova Scotia ..	34,000	.....	2,500	.....
St. John, N.B. ..	5,300	800	(no figures)	
Quebec, P.Q. ..	2,600	900	2,200	.....
Montreal, P.Q. ..	13,000	9,000	5,200	6,700
Ottawa, Ont. ..	4,500	2,000	(no figures)	
Toronto, Ont. ..	10,300	9,600	800	3,000
Winnipeg, Man. ..	5,300	21,300	700	12,000
Calgary, Alta. ..	.....	6,500	...	4,000
Vancouver, B.C. ..	.....	23,500	...	11,000
Victoria, B.C. ..	.....	6,000	...	6,000



## NORTH CAROLINA BRED ITALIAN QUEENS

of Dr. C. C. Miller strain of pure three band Italian bees. Gentle and great honey gatherers. Ready May 1st.

Untested, \$1.00 each; \$10.00 per doz.  
Tested, \$1.50 ea.; Selected Tested, \$2.00 ea.

Safe arrival and satisfaction guaranteed.  
L. PARKER,  
R.F.D. No. 2, Benson, N.C.

## PRACTICAL QUEEN REARING

is the title of the new bee book, cloth bound, 110 pages, finely illustrated, which has just been written by Mr. Frank C. Pellett, former State Apiarist of Iowa and well known bee-keeping writer.

For many years there has been a demand for a book which would give in concise form the many different methods of queen rearing, as the Doolittle, Pratt, Alley, Miller, Dines and others with variations as practised by the large queen breeders.

You have this in this new bee book.

Send for your copy now and learn for yourself how to rear queens from your best colonies to advantage. Variations of plans may be of great value also to queen breeders.

Price postpaid, \$1.00, or with the American Bee Journal, one year only, \$1.75.

(Canadian postage 15 cents extra.)

## AMERICAN BEE JOURNAL HAMILTON, ILLINOIS

## MOTT'S NORTHERN BRED ITALIAN QUEENS

have proved for the last 11 years to the Canadian friends to be the best of E.F.B. resisters. Hardy, hustlers and gentle.

Sel. tested, \$1.50; Unt., \$1.00; 6, \$5.00;  
12, \$9.00.

Plans "How to Introduce Queens and Increase," 25c. Lists free.

**E. E. MOTT - Glenwood, Mich.**

## Our HIVES, FRAMES, SUPERS

and other equipment for Beekeepers' purposes are Standard made and of the best grade. We fear no competition either in workmanship or quality.

Ask for our new illustrated catalogue. We are Canadian Agents for **DADANTS** foundation and carry a large stock for immediate shipment. You cannot buy anything better than **DADANTS**.

**The Tillson Company, Limited**  
Tillsonburg - "Everything for the Bees" - Ontario



## THE BEEKEEPER'S DIRECTORY

The following beekeepers will be able to supply Bees and Queens in any quantity for the season of 1918. Order Early.

**J. P. MOORE,**  
Morgan, Ky.  
Try Moore's Strain Next Year.

**W. R. STIRLING,**  
Ridgetown, Ont.  
Breeder of Fine Italian Queens.

**E. E. MOTT,**  
Glenwood, Mich., U.S.A.  
My Italians resist well the E. Foul brood,  
Northern bred, hard, prolific, gentle.

**M. C. BERRY & CO.,**  
Hayneville, Ala.  
Select bred Italian Queens and swarms of  
bees in packages.

**H. W. FULMER,**  
Point Pleasant, Pa.  
Importer and breeder of Gray Caucasian  
Bees and Queens.

**THE ROOT CANADIAN HOUSE,**  
73 Jarvis St., Toronto, Ont.  
Full colonies—Nuclei—pound packages.  
Queens of Canadian or U. S. A. stock. Three  
banded golden Italians.

**THE BEEKEEPER**  
Can sell your Bees, Queens and Supplies  
Write for Rates

## Items of Interest

A meeting of representatives of the various co-operative associations in the Niagara District was held recently when a resolution was passed favoring the appointment of a committee to arrange for a system of co-operation between the various local co-operative associations for the purpose of promoting the sale of the products of the orchards and vineyards of their members and the purchase of supplies through one central organization.

Many readers of THE CANADIAN HORTICULTURIST will hear with regret of the death of Flight Capt. C. F. Pattison, R.N. A.S., son of Mr. F. G. H. Pattison, of Winona, who has been the regular contributor of the Niagara District Notes to The Canadian Horticulturist. Death was due to an airplane accident in England. Capt. Pattison, who had destroyed five German planes and been shot down twice, was only twenty-one years of age.

The annual meeting of the Vernon B. C. Fruit Union was held near the close of March. The reports presented showed that during the year the Union had handled 539 cars of fruit and 122 cars of vegetables. On these shipments a profit had been made of \$7,455. An effort will be made this year to greatly increase the tonnage handled. The report from the Feed Department showed a turnover for the year of over \$70,000 and a profit of over \$5,500.

Mr. G. A. Putnam, Director of Women's Institutes for Ontario, has been training a class of 30 young women in farm work. Some of them worked on fruit farms last season, and have offered their services for a period of five or six months this year. They are being taught to groom and hitch a horse to a wagon, plough or harrow, and given instruction in other farm work.

## REMOVE THE DUTY.

The following resolution was passed unanimously at the recent annual convention of the Ontario Fruit Growers' Association:

"Whereas, it is of the utmost importance that everything possible should be done to increase production, we urgently ask the Government to remove the duty from all spraying machinery used for the spraying of orchards; as the quantity and quality of the fruit products depends entirely on the care that is given them. With the scarcity of labor we must have efficient machinery to work with. The present duty, added to the increased price of labor and material, makes the cost of spraying machinery a hardship for the average grower."

## FOR SALE

GOOD ITALIAN QUEENS

Tested, \$1.00, 6 for \$5.40.

Untested, 75c., 6 for \$4.25.

Begin sending out about April 15th.

**G. W. MOON**

LITTLE ROCK, 1904 Park Ave., ARK.

## For Sale

a few colonies Italian bees with tested queen in 9-frame Model hives at \$12.00 per colony. With breeding queen, \$17.00, May and June delivery.

A few choice breeding queens at \$5.00 and \$10.00 each, spring delivery.

**John A. McKinnon**

ST. EUGENE - ONTARIO  
Canadian Queen Breeder.

# HONEY CONTAINERS

We have prepared a large stock of all sizes and therefore will be able to give

## PROMPT SHIPMENT

In order to secure delivery and as present conditions make it impossible to guarantee prices we suggest you place your ORDER NOW.

Our Illustrated Circular and Price List has been issued. Did you receive your copy?

**MACDONALD MFG. CO., Limited**

Spadina Ave. and Richmond St.

**TORONTO - - - CANADA**

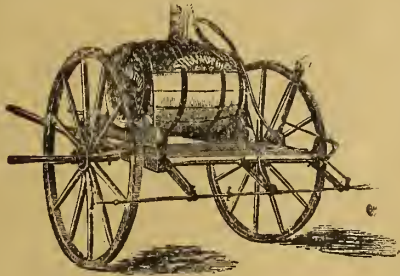




## Regulating the Sale of Fruit

D. Johnson, Dominion Fruit Commissioner, Ottawa

WHEN the members of the Food Controller's Fruit and Vegetable Committee met for the first time last September, consideration was given first as



A complete, durable outfit for spraying potatoes and all row crops—easily adjusted to suit the width of your rows and the height of the vines. The

### *Spramotor*

**It isn't a SPRAMOTOR unless we made it**

is the recognized standard of excellence—simple in design, powerful, durable. Made in many styles and sizes, operated by hand, horse and gasoline power.

Made in Canada—No Duty to Pay.

Write to-day for FREE illustrated treatise on "Crop Diseases."

**SPRAMOTOR WORKS**

4012 King Street, London, Canada.

to whether or not a price should be set to the producer in connection with apples and potatoes. After much discussion it was decided that it would not be well to do so, as such action might tend to discourage production.

Then we turned our attention to the dealers. It was found that already a large proportion of the fruit crop of Ontario and British Columbia had been bought, and in some cases again resold. However, it was decided to thoroughly investigate the wholesale dealers' profits. It was represented to us that the wholesaler was making enormous profits, that he was growing rich at the expense of the producer and consumer, and that if his profit were cut to a reasonable margin the producer would receive much better returns, and the consumer much cheaper fruit. Our investigations proved a surprise to us, as we learned that the profits made by these men were very moderate; that, in fact, they were doing a public service in distributing food, for which they were not given any great recompense. We found that the actual net profits of the wholesale trade in Eastern Canada did not average more than from 2 to 2½ per cent. Indeed, I may say that I came to the conclusion, from the information obtained, that I would not care to take the ordinary wholesale fruit business as a gift. The commodities handled are of such a perishable nature, and the business requires such quick action that a possible profit of 2½ per cent. appears to be a very moderate return, especially as it may so very readily be converted into a loss by various trade and weather

## Improved Peerless Plant Boxes

With Round Cornered Rims



The outside rim or band is unscored at the corners thus greatly strengthening the box and eliminating a very large percentage of the breakage hitherto experienced. The Round Corners do not interfere with the arrangement of plants in the box.

OUR MOTTO:

**"Every Box a Trade Winner"**

Order early from

**Canada Wood Products Co.**  
St. Thomas, Ont.

## HONEY CANS

We are prepared to quote on full line of Honey Containers.

When writing for prices state quantity required of each size.

**American Can Co.**  
HAMILTON, ONT.

## FEED THE LAND

By using the best Manure and get

## GOOD CROPS

For Nurseries, Fruit Growers and Gardeners.

## Sure Growth Compost

(A Composition of all Natural Manures)

Makes poor land fertile and keeps fertile land most productive.

Special low prices for Summer Shipments, May 1st to September 1st.

Supplied by

**S. W. Marchment**

133 Victoria St., TORONTO

Telephones: Main 2841; Residence, Park. 951

Say you saw this ad. In The Canadian Horticulturist.





## "IT IS SUCH A SAVING IN LABOR I MUST HAVE A POWER OUTFIT."

In his sixth order to us, Mr. J. C. Harris, of Ingersoll, Ont., says more for the Spramotor than our most enthusiastic advertisement. A man may buy a thing once and be dissatisfied, but when he comes back for additional purchases

there is only one conclusion that we can come to, and that is, that article must be all right. We never claimed more for the

**Spramotor**  
It isn't a SPRAMOTOR unless we made it

ceived and are constantly receiving from farmers all over Canada, signify that our statements have been met with a service that is making staunch friends for the Spramotor wherever it is used. Over 100 Gold Medals and Special Awards to the credit of the Spramotor, show that these expressions of confidence are merited. Suppose you write now while the matter is fresh in your mind for a copy of our booklet on crop diseases.

Made in Canada. No Duty to Pay.

**Spramotor Works, 4011 King Street, London, Canada**

than that it would do the work required of it effectively and economically, and in all things give satisfaction. And letters which we have re-

conditions, over which the dealer has no control.

While we came to the conclusion that the legitimate wholesalers were not taking any exorbitant toll from the shippers, we decided that certain regulations to govern the trade would be of value to all concerned. Upon our recommendation, therefore, the Food Controller has passed regulations dealing with the wholesale handlers of fruit products.

Because our committee was not able to get into operation until the early part of last September, the Food Controller's office was not in a position to take an active part either in assisting or controlling the purchase and sale of fruit and vegetables. It is expected, however, that our plans will be well laid for this year, that the margin of profit that dealers will be allowed will be defined, and that the speculative, gambling interest will be prohibited. We do not mean by this that the legitimate wholesaler will not be allowed to have a sufficient quantity of fruit on hand to meet his requirements, but we do mean that one dealer will not be allowed to turn fruit over to another dealer until the price is advanced to perhaps double the original cost when it reaches the retailer, who distributes to the consumer. I venture to state that the Food Controller will be the greatest single factor in the distribution of the fruit crop of 1918.

## Manitoba Horticulturists

**I**N spite of adverse climatic conditions there are many wideawake horticultural enthusiasts in the Province of Manitoba whose efforts are resulting in great benefit to the province along lines of both fruit and floral production. They are organized in the Manitoba Horticultural and Forestry Association, the 21st annual convention of which was held in Winnipeg February 20 to 22. The meetings were well attended and interesting throughout.

In order that horticultural work may be conducted along better lines, it was decided to take steps to have the Horticultural Society Act remodelled along the lines of the Ontario Horticultural Societies Act. A committee was appointed to take steps to secure the necessary legislation. The directors were requested to continue their assistance to the provincial garden show held in Winnipeg, as well as to local exhibitions. A request had been received that the association should select a flower which it would recommend should be adopted as a national floral emblem. The committee on resolutions recommended the sweet pea, but this suggestion was voted down, and a committee appointed to deal with the matter more fully. A summer horticultural meeting will be held during the third week of July.

Among the addresses given were the following: Inside and Outside Culture of Bulbs, and Tuberous Rooted Plants, by Prof. F. W. Broderick; Vegetable Varieties Suitable for Manitoba, F. W. Hatk, Grand Lytle, Man.; Celery Culture, Geo. Barratt, St. James, Man.; Marketing the Vegetable Crop, Marchant Bros., East Kildonan, Man.; War Gardens, by Mr. W. H. Whellams, East Kildonan; Winnipeg's Interest in Vacant Lot and Backyard Gardens, by Geo. Champion, Superintendent of the Winnipeg Parks Board; Roses and Hardy Annuals, A. P. Stephenson, Morden, Man.; Horticulture in New Zealand (illustrated), by Prof. V. W. Jackson; What Women Can Do in Practical Gardening, Mrs. Dumbrill, Charles Wood, Man.; Vegetable Gardening From a Commercial Standpoint, C. O. P. Olts, Melita, Man.; The Farm Garden, J. B. King, Fairfax, Man.; Bush and Small Fruits, Suitable

# Kill Aphis

**Before Aphis  
Kills Your Profits**

This tiny, sap-sucking insect, scarcely larger than a pin-head, is destroying apple profits all over the country. Feeding with its sharp, mosquito-like bill, it causes dwarfed, deformed, unmarketable fruit. Curls foliage. Weakens trees. Spray with

**Black Leaf 40**  
40% NICOTINE

and control Aphis, Red Bug, Leaf Hopper and other soft-bodied, sucking insects. Aphis is making its appearance in many sections for the first time. Regarded by many growers as the most destructive apple insect. One aphid produces thousands in a few weeks. Spray with Black Leaf 40 and save your profits. Can be used with lime-sulphur, arsenate of lead, bordeaux and other sprays as recommended, or may be used separately, if desired. Mixes perfectly with water. Costs only about 1c per gallon diluted for the trees. Recommended by agricultural colleges and experiment stations. Send for

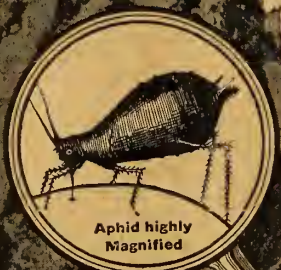
**Free Spray Chart and Leaflets**

showing when and how to spray and how to protect fruit trees, vines and vegetables from these profit-killing insect pests.

**The Kentucky Tobacco Product Co.**

Incorporated

Louisville, Kentucky





for Northern Minnesota, Prof. T. M. McCall, Crookston, Minn.; Some New Plant Introductions, F. L. Skinner, Dropmore, Man. Several of these addresses will be published later in The Canadian Horticulturist.

Visitors to the convention included Mr. W. T. Macoun, Dominion Horticulturist, of Ottawa, who was one of the speakers, and who gave valuable assistance, and Mr. J. Lockie Wilson, Superintendent of Horticultural Societies, Toronto, who described the work being done by horticultural societies in Ontario.

A special committee submitted a report on standards for judging vegetables. This will be published in full in The Canadian Horticulturist.

The following directors were appointed: Geo. Batho, H. W. Watson, W. J. Voughen, A. P. Stephenson, Norman N. Ross, F. L. Skinner, W. J. Harrison, W. C. Scott, F. G. Simpson, Geo. Barratt, Jas. Cocks, Mrs. N. M. Speechly, Henry Downing, and Prof. F. W. Broderick.

GLADIOLI BULBS

Hybrids—Beautiful markings. Nothing will give you greater pleasure than the Gladioli for cut flowers. Grow them in your garden. Per 100, \$2.50.

Aster Seed—Special Aster striped petals in two colors, Lavender and white, pink and white. 2 packages, one of each, 25 cents.

REDLANDS NURSERY

R. R. No. 3 - Sarnia, Ont.

PANSY

“Canadian Beauties”

If you wish to enjoy Pansies of great Perfection in form, coloring and size, we offer you, under the above title a choice product. Every flower is a queen; every plant a picture to behold. It is a blending of every imaginable color and combination of color. Per packet ..... 50c

Delphinium—“Majestic Glants” from a choice collection of named varieties. Packet ..... 25c

WM. McSKIMMING, Pansy Specialist  
230 ELIZABETH ST., GUELPH, ONT.

British Columbia

The Provincial Department of Agriculture will continue the holding of classes in apple packing this year on the lines that have proved so successful in former years. Last year the Vernon packing schools, including the Oyama district, passed 120 pupils. This year there will probably be three schools conducted in the Vernon district. Some 50 applications for training have been received recently in that district alone.

Deputy Minister W. E. Scott, of the Department of Agriculture, reports that trees have come through the winter in good condition, and give every indication that the province is likely to have an increased output of fruit this year. A publicity campaign to encourage local consumption as well as foreign orders is being arranged by the Provincial Fruit Growers' Association. Householders will be urged to utilize apples to replace other forms of food more necessary for export purposes.

Last year British Columbia shipped some 70,000 boxes of apples to the Australasia market. An effort will be made to increase the output in this direction as well as to the prairie markets.

Proper storage facilities for handling apples are lacking in the Okanagan, and some of the other fruit districts. Local growers are being urged to improve their storage facilities in order that they may be in a better position to supply the local markets late in the season when the supplies are usually drawn from United States sources.

One of the best booklets we have yet seen on gardening is entitled, “Garden Guide.” It is a compilation by J. Harrison Dick, and deals with how to plan, plant and maintain the home grounds, the suburban garden, the city lot, the growing of vegetables and fruit, the care of roses and other flowers, porch plants and window boxes and similar subjects with chapters on garden furniture and accessories. The paper edition costs 50c, and the cloth edition 75c. It contains over 250 pages, and scores of illustrations. Copies may be purchased through The Canadian Horticulturist, or one copy of the paper edition will be given for one new subscription to The Canadian Horticulturist for 50c, or of the cloth edition for a new three year subscription for \$1.

Methods of increasing crop yields for war needs are dealt with in Circular No. 76, of Purdue University, Agricultural Experiment Station, Lafayette, Ind.

PROGRESSIVE

The best of the Everbearing Strawberryberries. Big, ripe berries from August until November. We have fruited this wonderful everbearing strawberry for two years and it has proven beyond all doubt to be the leading everbearing variety. Progressive plants set last of April or first of May, begin bearing fruit first of August and continue until freezing weather. They are very productive, good size, good color and appearance.

Our plants were all covered with straw last fall to protect from winter injury and sprayed several times last summer.

Price \$10.00 per thousand, \$1.50 per hundred. Terms CASH with ORDER. Our price is exceptionally low. Advise ordering quickly.

JAS. E. JOHNSON & BROS.  
SIMCOE, ONTARIO

“BIG VALUE”  
Collection, 50c. Postpaid.



1 Asparagus Fern		
1 Little Gem Calla		
1 Strawberry Geranium		
1 Gladiolus America		
6 Gladiolus, Fine Mixed		
Pkt. Giant Columbine Seed		
Pkt. Grandiflora Sweet Peas		
Garden Collections by express not prepaid.		
10 Iris, 2 each of 5 sorts,	-	\$1.00
4 Peonies White, Pink and Red	-	1.00
10 Orchid Flowered Cannas	-	1.00
100 Gladiolus Bulbs, Mixed	-	1.00
100 Gladiolus America	-	1.75
10 Perennials, selected from Oriental Poppies, Larkspur, Hibiscus, Iris, Campanulas, Calliopsis, Sweet William, Gaillardias, Foxglove, Achillea, Baby's Breath, Pinks, Geum, Hollyhocks, or others	-	1.00
20 Raspberries, extra fine	-	1.00
100 Strawberries, Gregg	-	1.00

J. H. CALLANDER  
565 WELLER ST., PETERBORO, ONT.

Every planting season you stake land, fertilizer, time, work, and the cost of the seed on the good faith of your Seedsmen.

Every season for  
Forty-five years

EWING'S SEEDS

have justified  
this good faith.



They are clean and fresh—they show a very high percentage of germination—and are true to name and type. They include all the best of the new varieties, as well as the old favorites.

Write early for our new Illustrated Catalogue, and if your dealer hasn't Ewing's Seeds, order from us direct.

The William Ewing Co., Limited  
Seed Merchants, McGill St., Montreal.

Ewing's "Improved Hanson" Lettuce

A "crisp heading" variety that is very hardy and will stand extremes of weather. Head is large, hard, tender and crisp, with blanched centre; wholly free from bitterness, and remains long in excellent condition.

1/4 lb. 90c; oz. 30c; pkt. 5c.  
Sent postage paid—cash with order.



We offer a select list  
of  
Standard and Everbearing Varieties  
of

## STRAWBERRY PLANTS

Get our list before ordering  
ONTARIO NURSERY CO.  
WELLINGTON - ONTARIO.

## The Fruit & Produce Market

The Commission firms undernoted wish consignments of fruit and general produce. They will be pleased to have you write them for information, shipping stamps, etc., if you have fruit or vegetables for sale.

## STRONACH & SONS

33 Church St., Toronto, Ont.

Wholesale Fruit, Produce and Commission Merchants.

## H. J. ASH

44-46 Church St. - Toronto, Ont.  
CONSIGNMENTS OF FRUIT & VEGETABLES  
SOLICITED

We give personal, consistent and reliable attention to every consignment. Shipping stamps furnished on request.

## DAWSON-ELLIOTT Co.

32 West Market St., Toronto, Ont.

Wholesale Fruit and Produce. Consignments Solicited.

## HERBERT PETERS

88 Front St. E., Toronto, Ont.

Wholesale Fruit and Produce

See advertisement on page x.

# A Pruning Campaign in New Brunswick

A. G. Turney, Provincial Horticulturist, Fredericton

**A**SSISTANCE in the pruning of apple orchards is being given to New Brunswick farmers by the Horticultural Division of the Department of Agriculture during January, February, March, April and May of 1918, to as large an extent as is possible by the availability of competent help and funds. The objects of this assistance are:

(1) To instruct farmers in the proper pruning of their orchards.

(2) To assist them by this help, combined with their own, to prune their entire orchards as a preliminary step to the thorough

spraying and general better care of the trees.

(3) To have as many as possible of the best orchards thoroughly pruned, sprayed and cared for in 1918, with the object of marketing the fruit in an organized way along the lines of the shipments made through the Fruit Growers' Association in 1917.

(4) To avoid gluts in local markets and waste by ensuring that a considerable portion of the crop will be clean, of good size and color, and in general of such quality that it may be marketed successfully in competition with the best from other sources. Should the apple crop of 1918 in New Brunswick yield well, which is the expectation after the light crop of 1917, very low prices may result and much of the product be wasted or not used to the best advantage, unless strong efforts are made to grow a large percentage of No. 1 fruit, and steps taken to provide markets and equalize distribution.

(5) To enable farmers to secure greater net returns from their orchards and thus induce them to give them better care, extend their plantings, and in that way to stimulate and secure a greater development of apple growing in the province.

The conditions under which this assistance is being given are as follows:

Each applicant or orchard owner must participate in the work himself.

Applicants must agree to provide man for man, that is, one man for each man supplied by the Department; for example, if the Department sends one man, then the owner of the orchard must agree to work with that man, hour for hour, until the work is completed. If the Department supplies two men, then the orchard owner and one other man, to be supplied by him, must work with the two men from the Department, and so on.

The applicant must agree to furnish free board for the man or men supplied by the Department, and to pay to the Department twenty cents for each hour of work done by each man. This will be less than half the cost of these men's services to the Department, since their rate of pay is much higher than 20 cents per hour, and they will be paid by the day, whereas weather conditions may materially shorten the actual hours of work.

In arriving at the sum total of the amount due to the Department for the pruning of any orchard, the owner must agree to accept the total hours of work done as given to the Department by its men.

The applicant must agree to spray the orchard so pruned to the best of his ability at least twice in 1918, and if at all possible, three times, according to instructions to be given by the Department.

The Department has had a staff of men engaged in this work since January 1st. Despite the excessive cold and deep snow, excellent progress has been made, although it was freely predicted that very little could be accomplished in the heart of the winter. The depth of snow permitted the pruning of considerable portions of the trees, which if left until the spring would have required the use of ladders and more time. On only three days in a whole month, and then for a few hours, were the men compelled to give up the work because of the severity of the weather. On nearly all days they put in 8½ in 8½ hours of actual work.

It would be impossible to do the large amount of work in the few favorable but



**Every Truck Farmer**  
needs a tillage tool that does fast thorough work with one mule or horse. Experienced growers like the "Acme" Pulverizing Harrow because "the coulters do the work." They cut, slice, pulverize, and turn the soil twice in one operation. Leave the soil level as a floor and "mellow as fresh ashes." There's an "Acme" to fit your farm—1 horse to 4 horse. Send today for new free book, *The "Acme" Way to Crops That Pay.*

BAILEMAN WILKINSON CO., Limited  
502 Symington Ave. Toronto Ont.  
No. 23 61-2 ft. Wide



Size "H."  
1-horse cultivator.  
Cuts 4 ft. 4 in. wide.

## Business as Usual

## THE ST. CATHARINES COLD STG. & FDG. CO. LIMITED

*The Old Reliable Headquarters for Spray Materials, Pumps and All Fruit Growers' Supplies*

Our supply of Sulphur has arrived, can ship orders same day as received. We sell "Grasselli" Brand Lime-Sulphur Solution and Arsenate of Lead, "Niagara" Soluble Lime-Sulphur, Bluestone, Black Leaf 40, Fertilizers, Baskets, Crates and Berry Boxes, "Friend" and "Gould's" Power Sprayers and the labor-saving "Friend" Spray Gun.

*Order NOW From the Firm that Always Has the Goods On Tap*

**St. Catharines Cold Stg. & Fdg. Co., Ltd.**  
St. Catharines - Ontario



much busier weeks in the spring than it is possible to do by carrying on the work through the winter. In addition, by pruning through the winter, we are able to make use of labor which is generally not available in the spring. In these times winter pruning versus spring pruning means, in many cases, orchards pruned versus orchards not pruned.

We undertook this work mainly because this is not the time when we can afford to neglect our orchards. The temporary cutting off of pre-war markets, instead of being a reason for neglect, is rather to be considered as a very strong argument in favor of giving our orchards the best of

care—for, in a year of plenty of apples and small markets the high quality fruit has a better chance of being sold to advantage. Moreover, it is not economy to neglect our orchards this year, because of possible or even probable low prices, and thereby lessen their productive power for the next one, two or three years.

# Bob Long

Union-Made

## Overalls Shirts & Gloves



### THE TEST

68 lbs. to the square inch under hydraulic pressure is the test that "Bob Long" overalls have been put to. Their strength is in the tightly woven fabric.

*Bob Long says.*

"My overalls and shirts are the best, because—they stand the test of the wash-tub—no starch filler or cheap dyes to wash out."

Insist on "Bob Long" brand. Ask your dealer for Big 11—the big grey overalls—the cloth with the test.

My Dad wears 'em.

*Known from Coast to Coast*  
**R.G. LONG & CO. LIMITED TORONTO, CANADA**





## FLOWER POTS

### Hanging Baskets and Fern Pans

We make the "Standard" Pot, the best Pot in the world—uniform, best of clay, well burned, in every respect superior to all others.

All our pots have rim on shoulder, thus allowing them to be placed together perfectly and preventing breakage in shipping and handling.

Place your Spring Order NOW.

A complete line and large stock of all sizes kept on hand to ensure prompt shipment.

Send for NEW CATALOG and PRICE LIST.

**The Foster Pottery Co.**

HAMILTON, ONTARIO.  
Main Street West.

In our orchard in Lambton county we have been packing all our apples in boxes for the last three or four years, and have used the Canadian box. Some time ago we tried the Oregon box, and now would not think of going back to the Canadian box.—D. Johnson, Dominion Fruit Commissioner, Ottawa.

The Hanover Horticultural Society has adopted as its motto "Beautify Hanover." This motto appears on the head of the stationery of the society.

### APPLE BARRELS

We ship them all over Ontario.  
Machine-made, Standard size.  
Get our prices.

Contracts made with Fruit Associations.

**SARNIA BARREL WORKS,**  
Sarnia, Ontario.

### SANDER & SONS ORCHID GROWERS

The Finest Stock in the World  
Catalogue on Application

**ST. ALBANS - ENGLAND**

## Bruce's Flowering Bulbs

### GLADIOLUS



Unequalled for beauty of bloom. Plant in May and June, bloom in August and September. Easily grown and bulbs good for several seasons.

**Bruce's Choice Mixed**—A satisfactory mixture, 10 for 50c; 25 for 90c; 100 for \$3.00 postpaid.

**Bruce's Superb Mixed**—A grand mixture of all varieties, 10 for 80c; 25 for \$1.80; 100 for \$6.50 postpaid.

**Separate Varieties**—Splendid collection 30 varieties, Whites, Reds, Blues, Yellows, Striped, Bordered and Blended Shades, from 9c up to 50c each postpaid.

Also Dahlias, Lilies, Begonias, Gloxinias, Tuberose, Etc.

*FREE: Our valuable 112-page catalogue of Seeds, Plants, Bulbs, Garden Implements, Poultry Supplies, Etc. Write to-day for it.*

**John A. Bruce & Co., Ltd.**

Established 68 Years Hamilton, Ontario

## The Railway Situation

G. E. McIntosh, Traffic Expert, Dominion Fruit Division, Ottawa.

Private vs. public ownership of railways is a big question. As I have previously pointed out at meetings of the Ontario Fruit Growers' Association, there is a great deal to be said in favor of both policies. Government operation is not necessarily government ownership. The present might be an opportune time to lay the foundation for a definite railway policy for Canada. The United States has recently taken over the control of its railways, and some of the immediate benefits to shippers have been as follows:

(1) Only companies that require financial assistance have been given such.

(2) Equipment has been pooled and supplied where needed, regardless of competitive conditions.

(3) Freight has been moved via the shortest route, regardless of giving the originating carrier the long haul.

(4) A general advance in rates has not been made except by the government itself, and concerning which the shippers, namely the citizens, the taxpayers, have been recognized to be entitled to be heard. Any profits go to the government and not to the speculator.

(5) Since the government has been interested in making a record for efficiency, rather than to hoard revenues, claims have been more quickly paid.

(6) The public interest has been first served with a possibility of the country's expenses of transportation being greatly reduced.

## Apple Situation

A statement by Mr. J. G. Anderson, of the McNaughton Fruit Co., Ltd., Winnipeg, on the apple outlook for 1918, was read at the recent annual meeting of the Ontario Fruit Growers' Association. Owing to three poor crops in succession, which has resulted in a smaller quantity of Ontario apples being produced, as well as an increase in the percentage of fruit of poor quality, Ontario fruit has somewhat lost its grip in the Prairie Provinces, and the Western box apple has strengthened its hold in proportion. It may prove difficult for Ontario apples to regain their hold. Mr. Anderson considered it unfortunate for the trade that the price of Nova Scotia barrelled stock had been forced up to the high level it reached during October and November, as this high price has tended to prevent the fruit going into consumption, with the result that large quantities of it are likely to be wasted. He rather expected to see the price of this fruit decline.

# Fruit and Vegetables Solicited

## We Get You Best Prices

OUR facilities enable us to realize top prices at all times for your fruit, vegetables or general produce. Aside from our large connection on the Toronto Market, we have established branch warehouses with competent men in charge at Sudbury, North Bay, Cobalt, Cochrane and Porcupine. In time of congestion on the Toronto market we have a ready outlet through these branches. We never have to sacrifice your interests.

Branch Warehouses:  
Sudbury, North Bay,  
Cobalt, Cochrane and  
Porcupine.

**H. PETERS**

88 Front St. East, Toronto

References: The Canadian Bank of Commerce (Market Branch) and Commercial Agencies.



**We Solicit Your  
Consignment**

**Send for  
Shipping Stamp**





# Forty-nine bushels to the acre

## Grown in Ontario

The splendid wheat yield pictured here was grown in Western Ontario last summer on well prepared soil enriched with 300 pounds of fertilizer.



## Greater Crop Yields

Greater crop yields in Canada are of world-wide importance. European yields on old soils far exceed Canadian yields on new soils—except when improved methods produce crops like that pictured here.

**ANNOUNCEMENT:** The Canadian Fertilizer Association have established a Bureau which will encourage and assist Canadian farmers to achieve greater results in soil tillage, fertility maintenance and crop production. This Soil and Crop Improvement Bureau, under the direction of Henry G. Bell (a native of Ontario and a graduate of Ontario Agricultural College, later Professor of Agronomy University of Maine), co-operates with all organizations working for the improvement of Canadian Farming. Farmers are urged to take full advantage of this valuable information service which is free to all.

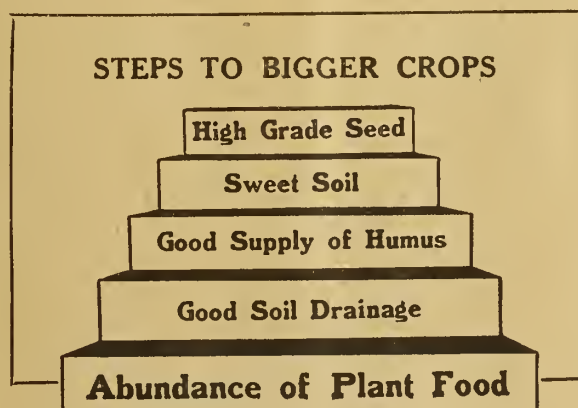
## Fertilizer

If the labor problem limits areas under crop you can increase yields 50 to 75 per cent. by careful soil preparation, seed selection and judicious use of fertilizers, and thus use the labor to best effect.

Fertilizers carry exactly the same plant food constituents as are carried by manure, but in more concentrated form.

Dr. C. A. Zavitz reported in 1917 the following results. Complete fertilizer used with winter wheat gave an increase of 5.2 bushels per acre at a cost of 82 cents per bushel (pre-war prices) when applied in the autumn; and an increase of 8.3 bushels per acre at a cost of 51 cents per bushel when applied in the spring.

### STEPS TO BIGGER CROPS



### What to Do Now

Top-dress fall wheat with fertilizers. It is your last opportunity to increase 1918 fall wheat yields.

Prepare to fertilize spring crops.

Use fertilizers this spring and profit by high crop prices.

Send Postal Card for Bulletin,  
"How to Increase Ontario Crop Yields"

## Manure

Manure spread thin yearly (4 or 5 tons per acre) pays better than manure applied in equal quantity at one application every four or five years.

8 tons manure (protected from rain and snow) strengthened by 320 lbs., acid phosphate to the acre increased wheat yields at Ohio Experimental Station 5.38 bushels per acre.

Similar fertilization increased corn yields 11.54 bushels per acre.

If you do not have enough manure to apply this quantity per acre, use complete fertilizers rather than acid phosphate.

**Soil and Crop Improvement Bureau  
of the Canadian Fertilizer Association  
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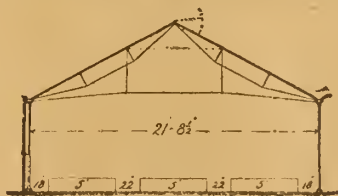
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KING CONSTRUCTION CO.

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# POULTRY YARD

## Incubator Suggestions

F. C. Elford, Dominion Poultryman.

EVERY person who can hatch good strong chicks this spring should do so. In all probability the number of hens that are suitable breeders is less than usual, and in a few cases those who have good females are not so fortunate in regard to males. Therefore, the more reason why those who have good breeders should hatch as many chicks as can be accommodated.

The best time to hatch depends upon local conditions. Chicks that come before the cold weather is gone, require good warm appliances and the best of care. If these are available hatch early for broilers are scarce and early cockerels will doubtless bring a good price per pound while early pullets are the birds that lay when eggs are dear.

If suitable equipment is not at hand, it would be unwise to have chicks hatched during cold weather, and yet care must be taken not to have them too late, as late chicks are usually not much good. Better make suitable equipment or even run the risk of hatching in cold weather than have late chicks.

In the American breeds the pullets should be hatched about seven months before they are expected to lay. The lighter breeds may be hatched a few weeks later. Therefore, to have eggs in the late fall and early winter such breeds as the Rocks, Wyandottes, etc., should be hatched in April or before the 15th of May, while the lighter breeds such as Leghorns, that mature more quickly, might do if hatched by the end of May.

As a rule, throughout the western part of Canada, the chicks should be hatched just as early as the weather will permit, for in the hot, dry sections, the growing stock does not mature as well as it does in the more humid and cooler districts. This also applies to parts of British Columbia, while at the coast it is not so important.

The best means of hatching depends on local conditions. Where good natural facilities are at hand and the natural method has been satisfactory and where not more than 100 chicks are required, the natural means may give best results. Where more and earlier chicks are wanted and especially if uniformity of age and size is desired, then the artificial means should be resorted to. Even in natural incubation much better results can be obtained if system is used than where hit and miss methods are practised.

### Protect Setting Hens.

In setting hens, always give them a room or compartment by themselves. Make it impossible for other hens to get into the nests or to interfere with the hens that are sitting. It is a good plan to make nests that can be opened and closed at will and in order to save your own time and the time of the hen, set several hens at once. Test the eggs under the hen on the seventh or eighth day taking out the infertile eggs and doubling up the hens on the eggs that are left. Again when the hatching occurs a further doubling up process can be resorted

to and the chicks from three broody hens given to two mothers or, if the hatch is small, one hen may mother the chicks from two hens.

In artificial incubation there are several points that must be considered. 1. An incubator is only a machine and will not supply brains. These have to be furnished by the operator. 2. As a rule, a cheap machine that is cheap in construction is dear at any price. A machine well made, with good insulation in the walls, costs money to build and is worth more than the cheap, flimsy machine. 3. The incubator requires a certain amount of attention and if the operator is not disposed to give this attention, it would be better not to buy an incubator. 4. As a rule, the manufacturer's instructions should be followed, at least until they have been proven to be faulty. 5. The very best of incubators will not produce good chicks from poor eggs. Therefore, the best of care must be exercised to see that the breeding stock is healthy, the fertility good and that suitable care is given the eggs from the time they are laid until they are hatched.

Give the machine a thorough cleaning and disinfecting before using. See that all repairs are made. Make sure that the thermometer and the thermostat are accurate. Have a new wick in the lamp and every two years at least get a new burner.

Run the incubator several days to make sure it is all right before putting in the eggs. See that the eggs are normal in shape, size and texture of shell. After the second day turn the eggs morning and night and cool once a day until the nineteenth day, when the machine should be closed. Keep the chicks in the egg tray rather than allow them to drop to the nursery tray, and remove to good, warm brooders when well dried off.

## Destroy the Vermin

Cornell (Lawry) powder, made with gasoline, crude carbolic acid and plaster of Paris, is effective in controlling body lice on poultry. The insecticide is made by mixing three parts of gasoline and one part of crude carbolic acid with as much plaster of Paris as the liquids will moisten. Allow the powder to dry before it is used. If kept in an air-tight container, it retains its strength for a long time. It must be kept away from fire.

Infested fowls should be thoroughly dusted, especially about the vent, in the fluff, and under the wings. About a pound of the mixture is needed to dust 10 mature fowls. Gloves should be worn during the dusting process as the powder may injure the skin.

This powder is not as effective in combating head lice on poultry, and is not recommended for mites and fleas. The body lice are small, wingless, chewing insects commonly found among feathers. They eat bits of feathers, scales of the skin and dried blood resulting from wounds, but do not puncture the skin and suck blood as the mites do. They may, by constantly biting at the skin, cause severe irritation.



## Items of Interest

The National Service Girls, who will work in the Niagara District this summer, held a meeting recently and decided to adopt a uniform which will consist of a large cow-breakfast hat, a grey flannel smock, belted at the waist, grey riding breeches, canvas leggings and stout boots. Each girl will wear on her arm the National Service Badge, and after two months' service will receive the National Service Button. The proposed costume is not compulsory, although it is likely to be generally worn. The girls have decided to work ten hours a day, two of which may be at housework, if the farmer so desires. This work will not include scrubbing or washing. None of the heavy work on the farm, such as pitching hay, will be attempted.

The Ottawa branch of the Ontario Vegetable Growers' Association has prepared its programme of activities for the approaching season. It includes a visit to the Experimental Farm in August, and the Aylmer Fair in September. A local field crop competition will be conducted for celery plants, cauliflowers, tomato plants, late cabbage, seeded onions, transplanted onions and melons.

The Utah Agriculture College Experiment Station, Logan, Utah, has issued one of the best bulletins yet printed on Orchard Heating. It is bulletin No. 161, and is by Frank L. West and N. E. Edlefsan.

## The Tree Family

A Great Family to get acquainted with! You may have a few cousins on your front street or your fruit farm, but there is no known way of meeting the main branches of the clan unless you read

## The Canadian Forestry Journal

(ILLUSTRATED)

Just 52 pages, finest book paper, plenty of pictures, and everything short and interesting. Easily read, and hard to forget!

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Send for a sample copy, or send in your name now for 14 issues, and pin a dollar bill thereto. We'll be responsible for safe delivery. Canadian Forestry Association (founded 1900), 206 Booth Building, Ottawa, Ont.

## Northern Ontario

A vast new land of promise and freedom now open for settlement at 50c an acre in some districts—in others, Free.

Thousands of farmers are responding to the call. Here, right at the door of Southern Ontario, a home awaits you.

For information as to terms, regulations and railway rates to settlers, write to

H. A. MACDONELL,  
Director of Colonization,  
Parliament Bldgs., TORONTO, CAN.

HON. G. HOWARD FERGUSON,  
Minister of Lands, Forests and Mines.

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In all that represents strength, character, real worth, permanency and the elements which builder and buyer recognize as the stamp of honest accomplishment,

## The Peerless Perfection Fencing

stands every test. Made by the open hearth process, all the impurities are burned out of the metal, thus removing one of the greatest causes of rust. The wire is also galvanized so thoroughly that it will not flake, chip or peel off. Every intersection of the wires in our farm and poultry fence is locked together with our Peerless lock. While these locks



hold the wires securely together, yet this fence can be readily adjusted and perfectly stretched over uneven ground. It's easily erected and on account of heavy, stiff stays used, few posts are required.

## PEERLESS Perfection Poultry Fence

is true to its name, a perfect fence strong enough to keep strong animals out and close enough to keep even small poultry in. Every Peerless fence is guaranteed against sag, rust or break and we stand back of your dealer unconditionally.

## PEERLESS Ornamental Fencing

for lawns, parks, cemeteries, etc., are handsome. Also lawn borders, flower bed guards, trellises, etc.

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## Ontario Growers Favor New Standards

AS reported in the March issue of The Canadian Horticulturist a lengthy discussion took place at the recent annual convention of the Ontario Fruit Growers' Association of the proposed new standards for fruit packages which have since been approved at the meeting of fruit growers and others interested from all parts of Canada held in Ottawa. The Ontario growers approved of the proposed changes. The discussion was opened by Mr. P. J. Carey, of the Dominion Fruit Division.

"We have," said Mr. Carey, "in the 11-qt. basket a package that is too shallow to hold three tiers of large peaches. That has been the trouble with it all along, and that is why we have used the deep 11-qt., and also the 9-qt. basket, which holds two tiers. The deep 11-qt. holds three tiers of large size peaches. The deep 11-qt. has some virtues, but it is not satisfactory for loading on cars, and it does not bundle. The 9-qt. is not satisfactory, because it does not hold as much as the 11-qt., and is often sold at the same price. The standard of the present 11-qt. basket is 5 3/4 inches deep, and the deep 11-qt. is 6 1/4 inches deep.

"The new basket that we propose to adopt," continued Mr. Carey, "is 6 inches deep and holds a trifle less than 11 quarts. That is much better than holding a little more. It does not matter how much it holds as long as all the baskets are the same size. The corners of the basket are square, and by the block being made the same size at the top as at the bottom, the baskets can be packed close together when not filled. It also makes the baskets stronger. In packing peaches we can pack them diagonally so that the cheek of one peach does not rest on the cheek of another. Small peaches can be placed in without tiering, as it does not matter so much how they are packed. The fruit inspector is not likely to find fault with the way the smaller peaches are packed."

In the discussion it was brought out by Mr. J. R. Hastings, the chairman of the special basket committee, that the flare of the 6-qt. basket is to be reduced to a minimum so that it will nest and bundle properly. The new baskets are likely to cost a little more, as the material used around the corners will be a little better. After full discussion it was moved that the 9 and 11-qt. baskets, as proposed by Mr. Carey, be approved by the Association as the only standard baskets to be used. The motion was carried.

The Standard Box.

Mr. Carey said he believed that he was

about the last man to be led to believe that the American box was the best. As this box is widely used in the United States and is supported by the apple growers of British Columbia, he had become convinced that it should be adopted for the whole of Canada, both for the export and interprovincial trade. It is the same length as the Canadian pear box, which has an advantage, as the tops of all boxes will be interchangeable.

"Another advantage of the American box," said Mr. Carey, "is that we will get rid of the end pack entirely. Where we get a flat or conical apple with the present box, five tiers often come too high. With the American box this will not be the case. The greatest advantage, however, that we will derive by adopting the American box is that it will not only be the standard for Canada, but for the whole of North America. I have tested this box during the past few weeks in every possible way, and believe that it will be satisfactory. I have examined thousands of these boxes in the west, and they have always come through in good condition."

After quite a little discussion, a motion moved by Elmer Lick, of Oshawa, favoring the adoption of the American box, was carried.

### Standard Apple Barrel.

In opening the discussion on the proposal to adopt the American standard size barrel, which has a 28 1/2-inch stave, is 26 1/4" between the heads, 17 1/2" in diameter at the end, and has a circumference of 64" at the bulge, Mr. Carey pointed out that the fruit growers of Ontario have found out of late years that the buyers were taking advantage of the fact that they were using an unnecessarily large barrel. The result is that they have begun to use smaller barrels, until now many different sizes of barrels are in use. Recently he had seen one in Montreal that measured only 27 1/4" on the outside, which was, of course, a violation of the law. Nova Scotia growers realize the advantage of having a standard size, and at their recent convention approved of the enactment of legislation that would establish the American standard as the Canadian standard also. Such action would give a uniform barrel for all of North America.

The proposal to make the American barrel the standard met with general approval, and without much discussion a resolution to that effect was carried.

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**If not, do so at once—THE DRIVE IS ON.**

### **REASONS WHY YOU SHOULD ENLIST:**

1. The Boys in the Trenches and the Reserves must have

**BEEF, BACON, WHEAT AND SUGAR.**

We must use the perishable Foods therefore,

**A BACKYARD GARDEN FOR EVERY HOME.**

2. It is the intention of the Government to forbid the sale of any Canned Goods from the time the Fresh Vegetables start until Aug. 15. So if we don't grow them we won't have them.
3. The care of the garden is an invaluable aid to health, since it takes one out into the warm sunshine. Digging in the earth is one of the most invigorating of exercises, especially for those who suffer from tired minds and overworked nerves.
4. No greater opportunity affords itself for teaching the real meaning of life to children than the backyard garden.
5. It is in the garden that children first learn industry and method, and it may be the means of directing the energies of an active child into a healthy and normal channel.
6. It has been said, and with a great deal of truth, that the homes from which men and women of sterling qualities come, are the homes which have gardens full of growing things.

Have you used or have you seen the lighter garden tools—the triangle hoe, the 3 tined cultivator, the adjustable rake? They make the work easy.

Remember that no child should be expected or allowed to use the heavy tools that their parents are using. Serious injury for life may result.

Don't be in too great a hurry to get your seeds into the ground. Don't forget that the germinating temperature of all seeds is between 75 and 80 degrees. Work the soil over and over again to warm it up.

Never mind if your neighbor is a week ahead of you. In the end by frequent cultivation you may have better results.

Did you notice last year that it was better to have long rows running north and south, if possible, than several small plots. They are more easily cultivated and less room wasted.

It is much better to sow small quantities often than large quantities seldom.

Secure reliable varieties of Seeds.

Full information on the subject of vegetable growing may be had. Now is the time to receive.

Horticultural Societies, Women's Institutes, School Boards, Town Councils, Church Organizations, Y.M.C.A's, etc., should co-operate with one another in organizing the work.

Lecturers will be furnished to address a meeting of school children in the afternoon and a public meeting in the evening wherever possible, but it is hoped that local talent will be used to a great extent.

Applications for Speakers and Literature—"A Vegetable Garden for Every Home," should be addressed to the Department of Agriculture, Toronto, Ont.

Members of the Women's Institute can secure Seeds by applying to the Secretary of the Branch.

Many citizens of urban municipalities will find it impossible to assist directly in the production of food for export. There are few however who cannot spare an hour or two each day from their regular work and this can be of the greatest value if devoted to the production of vegetables.

Those who have land and cannot cultivate it can assist by turning it over to those who have none.

There is nothing more patriotic, more profitable, more healthy, more pleasant than cultivating a back yard garden.

**ONTARIO DEPARTMENT OF AGRICULTURE, TORONTO**

**SIR WM. H. HEARST,**  
*Minister of Agriculture.*

**DR. G. C. CREELMAN,**  
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Manufacturers  
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Wall Board  
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Felt in Canada.*

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Every roll carries a complete kit inside, and has our unconditional guarantee.

For your home, use Neponset Twin Shingles, surfaced with crushed slate, Red or Green; they give all the durability and protection of Paroid. Look for the Neponset dealer and get real satisfaction.

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Winnipeg, Calgary, Edmonton,  
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*Also Manufacturers of Neponset Wall Board*

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## Potato Spraying Demonstrations in P.E.I.

During the early summer of 1917, several makes of potato-spraying machines were secured for experiments at the Charlottetown Experimental Station. A contest was arranged, and the dates on which the several sprayings would be applied were advertised in the local papers. A number of interested men attended practically every demonstration. On the 28th of August, 1,300 people visited the Station, and the majority went to the potato field to see the work of the different machines. Late blight occurred in many parts of the province early in the season, and the check plots that were not sprayed at this Station showed very plainly that a bad attack of the disease was present.

The contest was carried on in duplicate with Green Mountain potatoes. Four applications were made to each plot. The total cost of applying the bluestone and lime includes the cost of both man and horse labor. Unsprayed check rows were left at intervals throughout the field for purposes of comparison. Long before potato digging time, anyone could pick out these by their dead, disease-infected tops. The following results were obtained:

(1) A four-row, horse-power machine with one nozzle spraying down from the top and one on either side of the row, applied 80 gallons of 4:4:40 Bordeaux to the acre, at a cost of \$1.65 application without poison. The plots yielded at the rate of 194 bushels of marketable potatoes, or 52 bushels more marketable potatoes than the corresponding unsprayed check, giving a net gain over the total cost of spraying, of \$32.40 an acre.

(2) A four-row horse-power machine with one nozzle spraying down on the foliage of each row, applied 35 gallons of the same Bordeaux per acre, at a cost of 80c an application. These plots yielded at the rate of 166 bushels of marketable potatoes, or 24 bushels more of saleable potatoes than the corresponding check, giving a net gain over the cost of spraying of \$14.80 an acre.

(3) A four-row hand-machine with one nozzle spraying down, and one nozzle spraying through from the side, applied 40 gallons of the same Bordeaux at a cost of \$1.00 an application, per acre. These plots yielded at the rate of 171 bushels of marketable potatoes, or 52 bushels more saleable potatoes than the corresponding check, giving a net gain, after deducting the total cost of spraying, of \$35.00 an acre.

(4) A four-row hand-machine with one nozzle spraying down on each row, applied 26 gallons of the same Bordeaux at a cost of 70c an application. These plots yielded at the rate of 138 bushels of marketable potatoes, or 19 bushels more saleable potatoes than the corresponding check, giving a net gain after deducting the total cost of spraying, of \$11.45 an acre. Marketable potatoes were valued at 75c a bushel. The contest clearly demonstrated the advantage of thorough spraying, and the necessity of spraying the 1918 crop.

The Purdue University Agricultural Experiment Station, Lafayette, Indiana, has recently issued a number of valuable bulletins and circulars, including the following: Circular No. 67, dealing with the Planting and Care of the Young Apple Orchard; No. 69, entitled Peach Growing in Indiana; No. 70, Apple Diseases in Indiana with Spray Schedule; Bulletin No. 200, which deals with Strawberry Varieties and Cultural Hints; Bulletin 281, entitled Varieties of Blackberries and Raspberries, with Notes on Their Care, and Bulletin No. 207, which deals with Gooseberries and Currants.



## Fresh Strawberries all Season

Send card to-day for McConnell's 40-page Free Plant catalogue. Tells you about the great Everbearing Strawberries and Raspberries; also standard varieties of Strawberries, Raspberries, Currants, Gooseberries, Grapes, Asparagus, Seed Potatoes, Fruit Trees, Shrubs, Ornamentals, Roses, Etc.

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**Port Burwell, Ontario**



# The Transportation Situation

G. E. McIntosh, Traffic Expert. Dominion Fruit Division, Ottawa

THE car situation, as it applies to the marketing of fruit and vegetables, is interesting. The total refrigerator car possessions of all railways operating in Canada are 4,740. To this should probably be added 475 potato cars, fitted out by the C.P.R. and C.G.R., and we have 5,215 cars suitable, but not always available, for the

transportation of fruit and vegetables, except for that portion which moves by express and before refrigerator protection is needed.

It is estimated that the distribution of the 1916 Canadian apple crop alone added \$1,313,187 to the freight receipts of the railways. If this is correct, and the 5,215 suit-

able cars were used entirely for such traffic, each car would have an earning capacity of \$251. I do not say such was possible, but the point I wish to make clear is that there was apparently that much business offered to the railways, and if the number of suitable cars in their possession did not handle the traffic, then they were not fulfilling the terms of the Railway Act, under which they are supposed to supply the shipper with safe and secure cars to transport freight delivered by him to them.

The successful transportation of fruit is a



## IMPERIAL SERVICE

If you are in doubt about the proper lubricant, *ask the Imperial Oil man*. He will give you courteous attention and sound advice on your lubrication problems. That is part of Imperial Service.

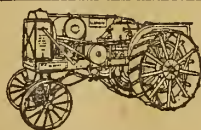
## LOOK TO US FOR LUBRICATION ADVICE

TRACTORS, automobiles, stationary engines, threshing machines and binders, present different problems in lubrication. When you burn kerosene in place of gasoline, you change your lubricating requirements. Tight and loose bearings—cylinders and axles—require different lubricants. There is no one best lubricant for all purposes.

But there is a scientifically correct and extremely efficient lubricant for each type of engine and fuel. There is an oil for every lubricating condition. At Imperial Oil stations in all parts of Canada, you can find the oil that will make you forget lubrication troubles and give you the full power and usefulness of your machine.

Each Imperial lubricating oil is sold in steel barrels and steel half-barrels—most convenient and economical. There's no waste. You use every drop you pay for. And it's uniform and clean.

## A Correct Lubricant for every Farm Machine



For Gasoline Engines,  
Tractor, Auto or  
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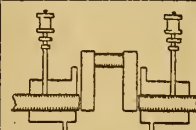
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and loose bearings



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duct for steam  
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Trouble comes to all of us at one time or another.

The man with a snug bank account, is fortified against the "slings and arrows of outrageous fortune".

It is the duty of every man to lay aside something for the inevitable rainy day.

Open a Savings Account today—and take your first step along the road to Independence.

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Head Office: Montreal. **OF CANADA** Established 1864.

with its 102 Branches in Ontario, 32 Branches in Quebec, 19 Branches in Manitoba, 21 Branches in Saskatchewan, 53 Branches in Alberta, and 8 Branches in British Columbia serves Rural Canada most effectively.

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Hardy and adapted for Canadian climate.

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When the Germans, forced to retreat by the French, cut down and mutilated every fruit tree in their path, they did so realizing the value of fruit crops to the French army and population.

The Fruit Crops of Canada are essential not only to our own armies but also those of the Allies. Save the fruit crops by killing the armies of the bug invaders with

## ACCO SPRAY

Acco Spray is the king of bug exterminators. Acco costs less than Paris Green or Arsenic poisoning and does the work more thoroughly. Where Acco is bugs cannot live.

The thrift habit is more important this year than ever before on account of war wastage. Food must be produced and the crops we have, saved. Do your duty by safeguarding the yield of your orchard with Acco Spray.

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complex problem even under normal conditions, but there is no disputing the fact that the railways have had extraordinary conditions to meet in keeping up a supply of equipment during the war period, and particularly the past year. I am convinced, after my experience of the past few months, in our endeavor to market with a reasonable degree of safety the apple crop of Nova Scotia and the surplus potato crops of Prince Edward Island and New Brunswick, that everything possible was done by the different railways through united cooperation to move with a preference such commodities.

The Nova Scotia apple crop during the past season was additional rail traffic, made necessary because of the British embargo, and fortunately for the growers of that province, Ontario was not a competitor, because of a light crop. This being the case, efforts could be, and were, centred on supplying Nova Scotia and British Columbia car requirements. Another year the situation may be different, but the railways will be better prepared. Last season there was an uncertainty about the permanency of the embargo, and everything was confusing. It is now pretty generally acknowledged that the British embargo will remain for the duration of the war, and consequently traffic arrangements will be made to meet the condition. It is one of the many ever-changing conditions in the present everyday life, which compels the organization of a system of transportation to meet emergencies, and while perishable shipments will no doubt in the future, as during the past year, have first place in so far as freight movement is concerned, it is going to require the united cooperation of railway officials, Board of Railway Commissioners, Canadian Railway War Service Commission and Food Controller, to make possible the movement of such products from one producing centre to the consuming markets of another part of the country, if it so happens that the fruit producing provinces each have a fair crop.

Nearly 2,000 carloads of Nova Scotia apples, exclusive of shipments to local points, have been moved. Of this number, approximately 800 carloads came to Ontario and were distributed in 71 different centres; 450 carloads were marketed in Quebec, and 350 carloads reached the markets west of the Great Lakes, the balance being distributed in other Canadian and United States markets. There is estimated to be 100,000 barrels yet to be moved from the province which have been held over by the owners. The shippers of Nova Scotia responded to an appeal from the Fruit Branch to conserve cars by loading as heavily as sale contracts would permit, the result being that on the movement of the 2,000 cars no less than 470 cars were released or put into service. A few shipments were below 30,000 lbs., but the average greatly exceeded this. One car went forward by mistake with 50 barrels, while the largest contained 338 barrels, or 49,650 lbs. This method of saving cars is most effective. The car shortage the past few months was largely attributable to consignees holding cars on track under load for various reasons, not so much by the large dealers as by the smaller ones, who appeared to be using the cars for warehouse purposes. Such practice, under present conditions, is little short of a crime. The seriousness of the situation was laid before the Food Controller, resulting in the matter being dealt with by an order-in-council, making regulations that will tend to prevent it in the future.

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It is recognized by our public men and leaders that the food situation is graver than at any time since the beginning of the war. If Great Britain and our Allies are to be kept supplied with food the utmost efforts must be made to secure a larger production. Thus the food supply becomes a vital factor in the final decision.

Too much emphasis cannot be placed on the value of vacant lot and back yard gardens. Every citizen who can possibly produce food will render a great service, no matter how small his contribution may be. If every home had its war garden this year, what an enormous amount of food would be produced collectively. In Port Arthur last year the Garden Club produced \$26,527 worth of vegetables. One plot, 50 x 100 ft., grew \$203.36 worth of food.

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**The Horticultural Publishing Co., Limited**  
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## The National Service Girls

Lack of space prevented our giving in the March issue of The Canadian Horticulturist a full report of the interesting discussion that took place at the recent annual convention of the Ontario Fruit Growers' Association of the terms and conditions under which the National Service Girls should be employed this season.

Dr. Riddell, Director of the Provincial Department of Labor, opened the discussion by pointing out that if labor is to be secured by fruit growers and farmers this year, it is absolutely necessary that wages be offered that will attract labor. A woman who can do two-thirds of a man's work should receive two-thirds of a man's wages. It had been suggested that the Government might pay the difference between what the farmer could pay and what the city man or woman could earn in the city. Were the Government to attempt to do this, it would result in all farm help demanding the same consideration. Of the girls sent out last year, 31% were in their teens and 57% in their twenties.

President F. J. A. Sheppard pointed out that many fruit growers, after they have met their expenses, do not themselves earn 15c an hour. Some had given up fruit farming and gone to the city, where they could earn more. The price of grain has advanced 100%, but the price of fruit has not advanced. This made it difficult for fruit growers to pay as much as they would like to.

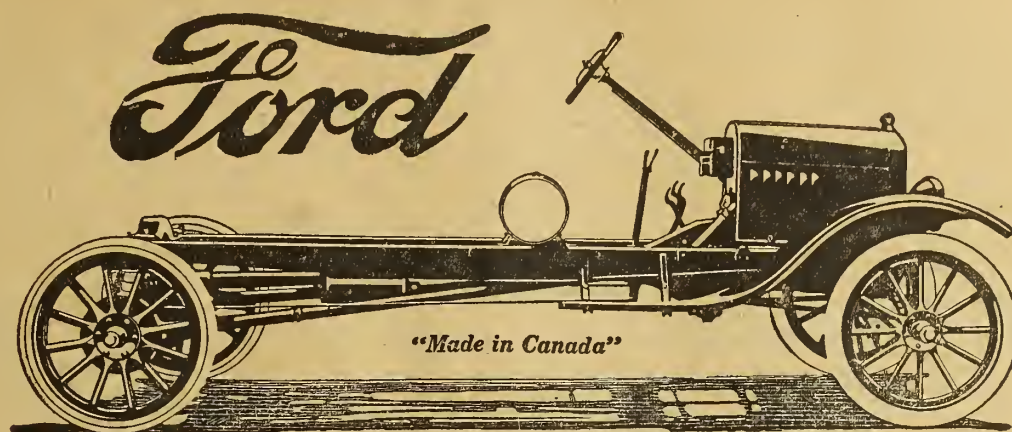
A number of the growers spoke enthusiastically of the splendid work the girls did last year. These included D. J. Gibson, of Newcastle; E. L. Jemmett, of Beamsville; R. J. Lowery, Queenston; Mr. Terry, of Clarkson, and others.

Miss Harvey, of the Trades and Labor Branch, made it clear that the girls did not want to ask for anything unreasonable. They did not expect to receive as much wages as men, but felt they were entitled to receive as much as high school boys when they did as much work. Some girls last season had sprayed, operated horse cultivators, and done other classes of men's work.

As the sticking point in the discussion centred around the payment of a minimum wage, it was finally moved that the minimum be \$6 a week for small fruits and \$9 a week for the larger varieties. This was put to the meeting and carried.

As a means of protecting the interests both of the girls and of the growers, the Provincial Department of Trade and Labor will appoint district secretaries in each district. When growers find that any of their girls are not earning the minimum rate as agreed upon, they will be able to report this fact to the district secretary, who will have power to send the girls home, should such action finally prove advisable. On the other hand, when girls have any reason to complain of their treatment by the growers, they will be able to refer the fact to the district secretary, who, if he finds the situation to be as stated, will have power to take the girls away and see that no more are sent to such grower or growers. Miss Harvey, who represented the girls and the Provincial Department of Labor in the negotiations, states that the foregoing terms will be satisfactory to the girls and to the Department, and that she believes it will be possible for her to recruit some 5,000 girls for this work this season. The girls are planning to wear a neat, simple, inexpensive uniform this year.





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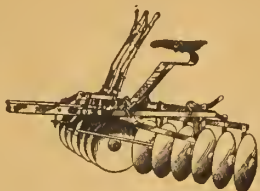
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217 Water Street Troy, Ohio.

## Effect of Food Control on Apple Situation

D. Johnson, Dominion Fruit Commissioner, Ottawa

**I** EXPECT we will have a moderate crop of apples in Canada this year. I am not looking for a big crop. Labor conditions are such that farmers are devoting their energies to other lines of agriculture, which are not so speculative as that of fruit pro-

duction. Orchards which a few years ago were receiving every attention, are now neglected and deserted, and the owners maintain that the labor situation is too acute, and the profits from an orchard too speculative for them to take a chance, and they are, therefore, giving their attention to the other parts of the farm, and if they are able to make anything at all from the orchard, they are just that much ahead. This spirit has prevailed since the war broke out. Every spring the statement has gone out that there will be no market for fruit, and yet the price of fruit has steadily advanced until this year it has reached such a height that it has practically stopped consumption.

The Food Controller's policy is the substitution of fruit and vegetables for the more concentrated foods such as meat and flour, and I believe that before next season's crop is harvested, the people will be educated to consider it a national duty to consume fruit and vegetables in preference to the exportable staples. If prices are moderate the consumption will be enormous. Canada could have consumed two or three times as many apples last year as we did. We have imported, against a duty of 90c per barrel, 376,414 barrels of apples from the United States from the 1st of April, 1917, until the 31st of January. This is against 224,290 barrels for the same period last year. This fruit should all have been produced at home. The average householder in our cities and also in our country towns, is not using apples; the people are simply doing without them, not because they do not want them, but because the price has been prohibitive owing to shortage of supply. In 1918 the fruit growers must not expect the high prices that prevailed this year, but I believe that those who give their orchards the proper care, and pack their fruit in strict accordance with the requirements of the Inspection and Sale Act, have good reason to look for a fair return for the time and money invested.

The question has been asked me from time to time as to whether or not a fruit grower is justified, in view of the fact that the British market is closed, in giving the usual care and attention to his orchard. It has been suggested on many occasions that it would be better for the fruit grower to devote his time to the production of field crops, and allow his orchard to produce what it will. I do not feel inclined to advise the public in regard to this, but it may possibly be of interest to you to know what I have determined to do on my own farm up in Lambton County. It is this, to give even better care to the orchard than in the years past, to spray as thoroughly as possible in order that a good crop of fruit may be produced, and to put up a high quality pack, wrapped, in boxes, feeling sure that the best fruit and the best packs will demand the best prices. We shall also put forth our best efforts upon our farm to raise more grain and stock, but not to the extent of neglecting the orchard, which is our first concern, for we are commercial fruit growers. If, however, I were a general farmer and had an orchard upon my farm, I would give my farm first consideration, cultivate and produce as much grain and other crops as possible, and if I then had any time to spare I would give it to my orchard. We cannot deny that under present conditions orcharding is more speculative than general farming.

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Visit the Flower City of Ontario on these dates. See the finest collection of Early Tulips in Canada. Over 200 varieties of Tulips, Hyacinths, Daffodils and other spring flowers on display in the J. H. Gould Building on May 10th and 11th. Tulip Sunday, May 12th.

The following prizes are for competition among Ontario Horticultural Societies (St. Thomas barred):

The St. Thomas Tulip Cup, value \$50.00, for best display of 25 varieties of Tulips of 5 blooms each.

Silver Medal for best bouquet of 5 blooms of any one variety.

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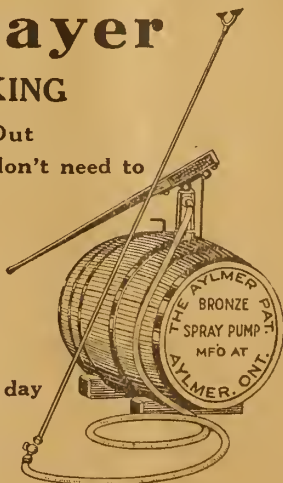
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The Gifford Spray Gun did much better work than any of the other guns.

The test was made under comparatively low pressure. This fact ought to be appreciated by owners of low-powered spraying outfits. All Spray Guns give good results under high pressure, but I was in doubt about the results under low pressure.

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Very truly,

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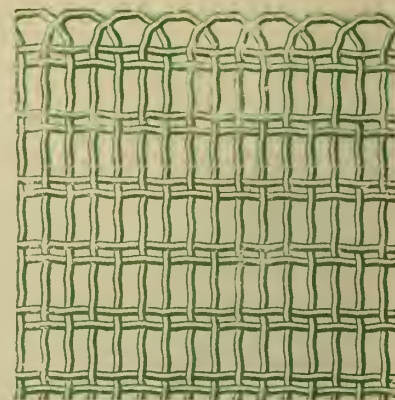
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Style 225 "Ideal" Lawn Fence.

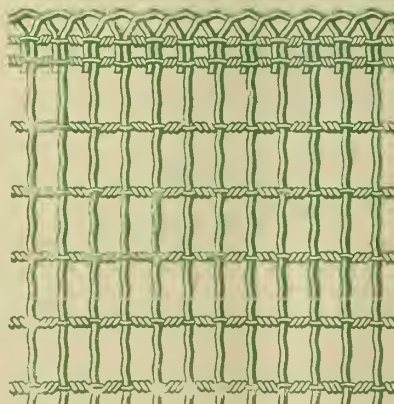
Below we give freight-paid prices to any station (except electric) in Old Ontario on orders of \$15.00 or over. Prices for New Ontario quoted on request.

### Quebec and Maritime Provinces

We have opened a warehouse and office at Montreal to handle Eastern shipments and correspondence. Ask our branch, 14 Place Royale, Montreal, Quebec, for "Ideal" prices, freight paid to any station in Canada, east of Montreal.

### Style No. 278 "Ideal" Lawn Fence

Uprights No. 9, crimped, securely held in place by two No. 13 gauge horizontal galvanized wires twisted together. Uprights 2½ in. apart, horizontals, 6 in. apart.



Style 278 "Ideal" Lawn Fence.

Price per running foot.

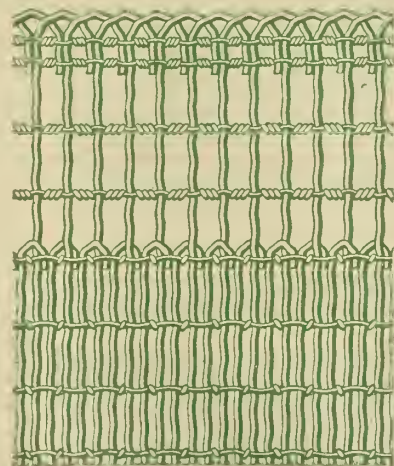
Height	Galvanized	Galvanized and painted
36 inch . . . . .	10 cents	11 cents
42 inch . . . . .	11 cents	12 cents
48 inch . . . . .	12 cents	13 cents

### Style No. 138 "Ideal" Lawn Fence

Similar in construction to Style No. 278, but made with pickets 1½ in. apart at bottom.

Price per running foot.

Height	Galvanized	Galvanized and painted
36 inch . . . . .	14 cents	15 cents
42 inch . . . . .	15 cents	16½ cents
48 inch . . . . .	16 cents	17½ cents



Style 138 "Ideal" Lawn Fence.

### "Ideal" Lawn Gates

With filling to match any style "Ideal" Lawn Fence.

Length	Height		
	48 inch	42 inch	36 inch
3 feet long . . . . .	\$3.25	\$3.15	\$3.10
3½ feet long . . . . .	3.50	3.25	3.15
4 feet long . . . . .	3.75	3.50	3.25
10 feet long . . . . .	7.00	6.75	6.50
12 feet long . . . . .	8.00	7.75	7.50
13 feet long . . . . .	8.25	8.00	7.75
14 feet long . . . . .	8.50	8.25	8.00

For Scroll Top Gates, less than 6 feet long, add 50 cents to above same size plain.

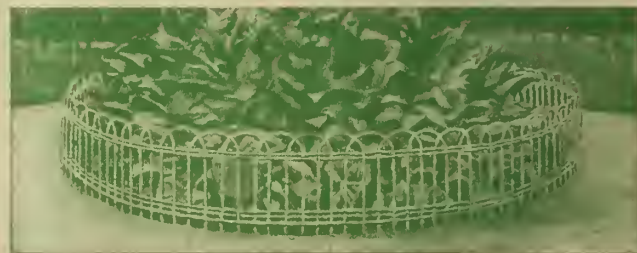
For Scroll Top Gates, 6 feet and over, add \$1.00 to above same size plain.

### Style No. 225 "Ideal" Lawn Fence

Made throughout of No. 9 hard steel galvanized wire. All wires being crimped, interlaced and locked with each other so they cannot slip. Uprights 2¼ inches apart, horizontals 6 inches apart, supplied in any length roll wanted.

Price per running foot.

Height	Galvanized	Galvanized and Painted
36 inch . . . . .	13 cents	14 cents
42 inch . . . . .	15 cents	16 cents
48 inch . . . . .	16½ cents	17½ cents



"Ideal" Flower Bed Guard.

### "Ideal" Flower Bed Guard

Design and construction correspond with the style numbers of "Ideal" Lawn Fence.

Price per running foot.

Style—No. 225

Galvanized	Galvanized and Painted
12 in. high. 18 in. high 12 in. high 18 in. high	7 cents. 8 cents. 8 cents. 9 cents.

### Place Your Order at Once

"Ideal" Lawn Fence and Flower Bed Guards will be supplied in any style and length of roll wanted. If a more complete description of gates and fence is desired, send for free catalogue. Remit by Bank Draft, Post Office Order or Express Money Order.

**The McGregor-Banwell Fence Co., Limited**  
Walkerville - Ontario



# The Canadian Horticulturist

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No. 5

## Dusting vs. Spraying in Nova Scotia

Paul A. Murphy, in Charge of Plant Disease Investigations in Prince Edward Island and Nova Scotia

APPLE dusting has become very familiar to many orchardists in the Annapolis Valley since we tried it for the first time in 1916. Following the successful results of that



Dust spraying in a Nova Scotia orchard. (Photo by Paul A. Murphy).

year the work has been continued along the same lines. As the writer pointed out at the last meeting, it is necessary that this method of controlling insects and diseases which infest the apple should be tried for a number of years before we can be assured of its general utility. The somewhat conflicting results obtained this year have emphasized this point.

### Conditions of Test.

The work under review was carried out on a uniform block of Gravenstein apples, the property of Mr. S. B. Chute, at Berwick. The trees were in good condition, being pretty well pruned, and not too large. The orchard was comparatively open, allowing good air circulation and permitting easy manipulation of the duster. It was situated on a gentle slope facing the northwest and the soil was light. The plots consisted of ten trees each. The records were

made from four trees in each plot as a rule, these trees being selected before the spraying began. In a few cases the number of trees from which records were taken was less than four.

The applications were made as nearly as possible according to schedule. Great difficulty was experienced in getting all the applications made on the same day owing to unsettled weather conditions. This is a point of great importance in experimental work in which various treatments are being compared, but it was impossible to observe the rule last year. The spray was put on on two days before the dust at the time of the first application, and one day after the dust at the time of the third and fourth.

The principal portion of the work was devoted to a comparison of dusts of various strengths and composition with lime-sulphur and a combination of lime-sulphur and Bordeaux, both in strengths recommended by Messrs. Brittain and Sanders in the 1917 spray calendar. The poisons used in the spray were also those recommended in that publication. Three of the dusts used were composed of powdered sulphur and arsenate of lead, with a filler in some cases. The strengths were: Sulphur, 50 per cent.; arsenate of lead, 10 per cent.; tobacco filler, 40 per

cent. (50, 10, 40); sulphur, 75 per cent., arsenate of lead, 10 per cent., talc filler, 15 per cent. (75, 10, 15); and sulphur, 90 per cent., arsenate of lead, 10 per cent. (90, 10, 0). The fourth dust was made of powdered precipitate from Bordeaux mixture, 10 per cent. arsenate of lead 10 per cent., filler 80 per cent. The dust was obtained from the Niagara Sprayer Co., and was applied by means of the large orchard duster of the same firm. The dust for each plot was weighed and put on at the rate of 2 lbs. per tree at each application. The first spray was put on with mist nozzles, and the other three with the Friend gun.

So far as the orchard which was treated is concerned, it is easy to draw conclusions from the figures in the table. Referring to Table I, we see that the 90:10:0 sulphur is decidedly superior to the weaker mixtures and is about equal to the Bordeaux dust, although the latter was used but three times owing to shortage of material. These two dusts are slightly superior to the liquid sprays used in a number of blemished apples in the pack out. This superiority is brought about by better insect control, but the protection afforded by the dust against apple scab is not as good as the spray provides. It will be noted that there is

TABLE I.

Percentage of apples affected with apple scab and insect injuries and pack out of crop.

Plot.	Materials used.	Strength of various applications.	Per cent. blemished apples.	Per cent. apples with apple scab.	Per cent. apples with insect injuries.		Per cent. No. 1's & 2's combined.
1	Sulphur dust	50: 10: 40 50: 10: 40 50: 10: 40 50: 10: 40	10.1	8.2	1.9		70.8
2	Sulphur dust	75: 10: 15 75: 10: 15 75: 10: 15 75: 10: 15	9.8	7.1	2.7		83.2
3	Sulphur dust	90: 10: 0 90: 10: 0 90: 10: 0 90: 10: 0	3.4	1.6	1.7		86.5
4	Bordeaux dust	10: 10: 80 10: 10: 80 10: 10: 80	4.0	1.8	2.1		70.0
5	Lime sulphur	1.009 1.007 1.006 1.005	3.5	0.6	2.9		82.5
6	Lime sulphur and Bordeaux	1.009 1.007 1.006 7: 7: 100	5.2	0.4	4.8		71.0
8	Check		38.7	32.8	5.8		46.2

\*A paper read at the recent annual convention of the Nova Scotia Fruit Growers' Association.



TABLE II.

Comparison of results of 1916 and 1917.

Materials used.	Strength	Per cent. blemished fruit.		Per cent. apple scab.		Per cent. insect injuries		Per cent. No. 1's & 2's	
		1916	1917	1916	1917	1916	1917	1916	1917
Sulphur dust .....	90: 10: 0	5.2	3.4	2.0	1.6	3.1	1.7	93.8	86.5
*Sulphur dust .....	50: 10: 40	4.9	10.1	2.45	8.2	2.45	1.9	90.6	70.8
*Lime sulphur .....	1.009	6.9	3.5	0.2	0.6	6.6	2.9	88.6	82.5
	1.007								
	1.006								
	1.005								
Check .....		28.3	38.7	13.9	32.8	14.3	5.8	66.4	46.2

\* Not exactly the same strength in 1916 as that given.

close agreement between the results of 1916 and those of 1917, as shown in Table II.:

In spite of the fact that the outbreak of apple scab was nearly two and one-half times as severe in 1917 as in 1916, (as measured by the check plots), the dust controlled it even better in the latter year than in the former, and in both years there was a slight margin in favor of the 90:10: dust over lime-sulphur, taking the total blemished apples and pack into account. It is evident from this also that the 50:10:40 dust failed in 1917 because it was not able to control the severe apple scab infestation of that year. So far as our experience goes it would seem safer to use nothing but 90:10 dust in Nova Scotia.

ly harmless so far as failure of the fruit to set is concerned. The same thing holds for one of the lime-sulphur plots. This may also be true for the plot six, on which the combined lime-sulphur and Bordeaux mixture formula was used. The variation between trees in the same treatment in these plots in which no serious harm was done in this way is great, because the drop depends on the number of apples which set, which the tree is not able to mature. In this way the experimental error is much increased and differences have to be large before they become significant. In those plots in which apples were sprayed off the trees by stronger mixtures and larger applications, which will be detailed next, the variations are not nearly so great.

TABLE III.

Particulars of number of apples matured, percentage of drop and of leaf injury.

Plot.	Materials used.	Strength of various applications.	Average total number of apples matured per tree.	Average percentage of original total which dropped after spraying.	Percentage of foliage burned.
1	Sulphur dust .....	50: 10: 40	586	17.5	1.9
		50: 10: 40			
		50: 10: 40			
		50: 10: 40			
2	Sulphur dust .....	75: 10: 15	884	17.3	1.2
		75: 10: 15			
		75: 10: 15			
		75: 10: 15			
3	Sulphur dust .....	90: 10: 0	678	13.3	1.0
		90: 10: 0			
		90: 10: 0			
		90: 10: 0			
4	Bordeaux dust .....	10: 10: 80	648	15.4	1.4
		10: 10: 80			
		10: 10: 80			
5	Lime sulphur .....	1.009	645	17.3	11.8
		1.007			
		1.006			
		1.005			
6	Lime sulphur and Bordeaux .....	1.009	851	27.1	10.3
		1.007			
		1.006			
		7: 7: 100			
8	.....		754	17.2	0.0

Table III. is inserted to emphasize the harmless nature of dust both as regards the foliage and the drop. This point was mentioned a year ago, and our experience last year was the same. There is no means known by which finer foliage is produced by dusting. The amount of burning recorded on the dusted plots does not do justice to their almost perfect condition in comparison with the sprayed plots. The burning on the latter was of a much more aggravated type. Another very important point is the absence of drop due to the dust. The percentage of fruit which fell is in no case appreciably higher than in the check. Since the drop in the check plot was not due to apple scab, it follows that dusting is perfect-

We found that dusting was between six and seven times faster than spraying, even with the most expeditious equipment yet devised. On the average, 389.3 trees were treated in one hour with the duster, while the Friend gun covered only 58.5 in the same time. Even so the cost of dusting is about two and one-half times as great as that of spraying in this way, owing to the exorbitant cost of the material. The particulars of the cost of the various items in each method are set out below.

This record was taken under conditions unusually favorable for spraying, as it was close to water and it took only a matter of a few minutes to fill up from a storage tank. If the orchard were further away, there were no storage tank, and ordinary nozzles were used, the cost of spraying would possibly have been about 7c per tree.

This emphasizes the present limitations of dusting owing to the excessive cost of the materials. It is most important to realize in dusting that four or five pounds of dust costing 25c or 30c, may be blown out in the direction of a tree in an extremely short time in an effort to do thorough work when the maximum that can be afforded on the average tree of full size is about two pounds. This amount is sufficient to do good work as our experiment shows.

### General Conclusions.

Sufficient experience has now been gained with apple dusting in Nova Scotia and elsewhere to warrant one in making a general statement. Neglected orchards infested with sucking insects, for the control of which by dust no present hope can be held out, the dusting method produces better foliage, and probably better finished fruit, than can be obtained in any other way. The fruit will be somewhat freer from the attacks of biting insects than sprayed fruit will be, but it will be somewhat more spotted with apple scab. The extent to which apple scab will develop in spite of the dust will depend on the season. It seems reasonably safe to say that in all but the severest outbreaks of apple scab, dusting will provide efficient protection for the crop in Nova Scotia. This has been the experience of all the growers who used it in 1917.

The question which then remains to be decided is this: Do years of exceptional scab infestations occur sufficiently rarely to warrant fruit growers in accepting the loss which such years will entail? The writer would think that many large orchardists might follow this course with advantage on account of the chance which dusting gives them in covering their whole orchard sufficiently often and at the proper time. The small fruit grower, who is under no difficulty in getting time to do his spraying, is in another position, and it is a question if he would not do better to adhere to the slower and somewhat more certain liquid applications. This is a point which can be settled only when one knows the average scab conditions, not only of the district, but even of the individual orchard.

TABLE IV.

	Materials.	Strength.	Poison.	Amt. of poison.	Amount of spray applied per tree.	Cost of materials cents.	Cost of labor cents.	Total cost cents.
Spraying	L. S.	1.007						
Dusting	S. Dust	90: 10	arsenate lead	5: 100	4 gals. 1½ lbs.	2.22 9.3	1.20 0.14	3.42 9.44



# Effects of War on Farm Apple Orchards\*

Dr. A. J. Grant, Thedford Fruit Growers' Association

WHO will dispute the fact that the average farm apple orchard is slipping back? We may blame the scarcity of labor since the great war broke out, but if we would know the real reasons we must go back to pre-war days to find their start.

The apple industry of Ontario originated in the orchards planted by the earliest settlers. Their ideas were generous, and in many cases they planted quite a respectable orchard, so that the home table might be well supplied with apples. I have in mind one orchard in western Ontario, planted some forty years ago. It contains a few trees of nearly every variety that ever grew, and then some. The original planting was 500 trees, and the good farmer told me that his idea was to have plenty of apples for himself and perhaps a few for his neighbors. In such ways many quite pretentious orchards were literally wished upon the individual who happened to own the farm fifteen or twenty years hence. The overplus of apples found a ready sale and some of the more enterprising farmers shipped a few barrels to Great Britain. The results were surprisingly good, and a boom in orchard planting was the result. In time, practically every farm in the more settled parts of Ontario became possessed of an apple orchard, the size depending upon the enthusiasm of the owner. The export market grew to very large proportions, and the itinerant apple buyer was much in evidence in all parts of the country, where good fruit was being grown successfully. These were the days when good apples were easy to produce, and many orchards returned good crops pretty regularly with very little attention. Then the pests came in sufficient number to force the grower, who wanted real apples, to put up a fight for it. No more easy money for him, and the pests have been asserting themselves more strongly ever since.

In our section during the season of 1912, there were quite a number of unsprayed orchards which yielded a large crop of fairly clean fruit, and I believe that this state of affairs was fairly general throughout Ontario. Since then we have had such an avalanche of scab, that only very persistent care and spraying has produced a good crop of fruit. The season of 1913 was a lean one, and scab was very prevalent; 1914 showed an abundant crop with plenty of scab and plenty of worry for the grower, owing to the outbreak of the

war on the very eve of harvest. Naturally there was panic and disorganization in the apple trade and the traveling apple buyer, who has been the subject of much abuse at our hands, never had a better opportunity of justifying his existence than he did during this trying season. Money was tight and the buyer failed to show his genial countenance, with the result that thousands of barrels of apples were never picked. Associations and large owners were in a position to take good care of their fruit as usual, and they were pretty generally well rewarded for their labor. In the years of 1915 and 1916, short crops and more scab were the order of the day until the season of 1917 saw the climax of six solid years of trial and tribulation for the Ontario farmer, when he got no apple crop at all. I am fully satisfied that the severe infection of scab on the leaves during

blessing in disguise, as they were travelling toward an untimely death, and with their demise will disappear at least some of the low grade fruit that gets on the market in favorable seasons; but we may well feel concerned lest the process of elimination proceed too far and the apple industry of Ontario receive a rude jolt not easily to be recovered from.

We cannot grow an apple orchard in a night. It requires twelve or fifteen years to get our standard varieties producing commercially. What of the tremendous increase in the importation of apples during the past few seasons? Does anyone imagine that this state of affairs is going to make it any easier for the Ontario apple grower? We are losing our best markets to foreign trade because we are failing to produce sufficient high-grade fruit to supply the demand. We have too long soothed



The promise of a good crop in the Cherry Orchard of Howard Leavens, Bloomfield, Prince Edward County, Ontario.

1916 largely accounted for the dearth of apples in the following season. The trees were so robbed of their vigor through lack of healthy leaf surface, that they could not mature the buds.

## Orchards Declining.

From the history of the past six seasons, is it any wonder that we see retrogression going on among our apple orchards? It required a heap of courage and no little faith on the part of any farmer, to stay with the game and take care of his trees, with the result that a great many orchards have been eliminated in the race. The elimination of many of these orchards has been a

ourselves with such clap trap as "the superior flavor of Ontario apples." We can produce an apple of superior flavor to that produced any other place in the world, but the realization of this great blessing is utterly useless unless we get busy and grow them in sufficient number to supply the trade. The people in our own great cities and towns want an abundance of first-class apples, and they have got the money to pay for them. If we Ontario growers will not produce them, they will buy from the western United States and British Columbia. We may be able to excel those districts in flavor, but they have got us

\*Extracts from an address delivered at the recent annual convention of the Ontario Apple Growers' Association.





Power sprayers are necessary in old orchards where the trees are large and insect pests and fungous diseases are numerous.

beaten to death when it comes down to getting the business.

We have a number of large growers whose orchards require no paternal care on our part. These men are successful in a line of their own choice and they are keeping their orchards in first class condition and being well rewarded financially; but the fact remains that by far the largest portion of our commercial apple crop is produced in the farm orchard, owned and operated by a farmer with many and varied interests in agriculture. It is the well situated orchards in this class that are crying out for attention and they are in for a severe setback if some concerted effort is not made to reclaim them.

When we consider the millions of dollars invested in apple orchards throughout Ontario, it seems to me worse than sinful waste to allow good small orchards to deteriorate and fall by the wayside, simply from lack of care. The idea seems to be prevalent that the orchard may be allowed to stand in a state of neglect until labor conditions become normal and then whipped back into shape, at the will of the owner. The whipping back process is no easy matter. It takes both money and energy in abundance. The man who is neglecting his orchard right now because the task looks too great, will have little chance of stirring up sufficient energy to tackle it a few years hence, because the work is multiplying by leaps and bounds. I have done considerable work in rejuvenating neglected orchards and have found that it is only a mighty good one that will pay for the work of putting it back into shape.

There is another side of the story. Orchard pests never were easy to fight, even when we kept hammering away at them. Imagine what is going to

happen during any period of laxity on our part. Scab has become so prevalent during the past few years that we frequently hear farmers wonder if we are ever going to be able to grow clean apples any more. San Jose scale is finding new haunts almost daily. It is perhaps most to be dreaded, because it soon kills the trees attacked. If this disease showed any special preference for poor orchards, or even poor varieties, we might feel easier, but like affliction falling upon the just and the unjust so this pest attacks both the good and the bad orchards and the owner does not require to be in a very deep state of slumber to have the disease get the start of him.

Many of our farm orchards are too small for profitable handling. It seems to me that orchards representing anything less than 150 to 200 trees should be leased or operated on shares by some man qualified for the work. Several such orchards in the same locality, under one management, could afford power spray machinery and other equipment to run the business successfully. This scheme has worked out well in parts of Ontario and a more reasonable attitude on the part of the owners, in the matter of rent, should make a wide application of this method popular. Good money can be made by renting a few small orchards at 50 to 75 cents per annum per tree, for a term of five or six years. The farmer with a neglected orchard on his hands will realize a great deal more money in this way and his property will be getting better instead of worse.

Many of our cooperative associations are made up of small orchards which might be readily placed in the hands of fewer growers to the profit of all concerned and to the lasting benefit of the apple industry at large. The number of Fruit Growers' Associations in

Ontario is decreasing every year. The small orchard is the big difficulty. I would like to see the Cooperation and Markets Branch of our Provincial Department of Agriculture undertake to reorganize some of our associations along these lines.

### Bridge Grafting

Girdled trees are frequently saved by connecting the upper and lower edges of the girdle with scions, which are inserted about an inch apart all around the trunk. This is known as bridge grafting. The more scions that are used, the more quickly they will grow together and form a new trunk, but two or three scions successfully grafted on a small tree will carry enough sap to keep the tree alive. A slanting cut is made at each end of the wound in the uninjured wood in which the ends of the scions are to be inserted. Strong, plump scions of the previous season's growth—not necessarily from the same tree, nor even the same variety, cut a little longer than the distance between the slanting cuts, are made wedge-shaped at each end. They are made a little longer than the distance between the cuts, in order that when inserting the ends into the cuts it will be necessary to bend them, and thus have them under pressure, which helps to keep them in position. After inserting, some of the inside bark of the stock should remain in contact with the inside bark of the scion; as it is here, or at the cambium layer, where union takes place. As soon as the scions are all placed, the wound, especially about the ends of the scions where inserted in the stock, is covered with grafting wax. The ends are also at the same time bandaged with a piece of sacking around the trunk to aid in keeping the scions in place and to exclude the air. The tree should then be well headed back. The scions, if properly made and inserted, should soon unite with the stock and then carry the sap to the top of the tree.

One of the most satisfactory methods of utilizing the badly girdled tree is to cut it off close to the ground and insert a scion of some good variety. This graft should grow at least three feet in height the first season and make a nice young tree.

A young tree may sometimes be saved when the girdling is well above the graft by cutting the tree back so as to remove all of the injured part. Under such conditions young trees will usually make new growth and the strongest shoot may be selected to form a new trunk and top for the tree. This method is not usually very satisfactory if the injury occurs more than two years after the tree has been planted.—Experimental Farm Note.



# Celery Blight and Its Prevention

Prof. J. E. Howitt, O.A.C., Guelph

**C**ELERY blight or late blight of celery is a common and destructive disease in Ontario. In wet seasons it is very injurious and ruins large quantities of celery, sometimes rendering patches of celery almost useless for market purposes.

On infected leaves, irregular, brownish spots usually develop. In these may be seen numerous black specks, the fruiting bodies of the fungus. The spots may be numerous and close together, and the leaf may wither and die. When the disease is bad, however, on many of the leaves the characteristic spots may not develop, but the whole leaf may be affected at once, become covered with minute black specks, dry and wither up. The lower leaves are nearly always the first to show these symptoms of the disease. The stems also are affected. On these irregular, rusty brown, somewhat water-soaked areas with the characteristic minute black specks are seen. The disease develops further after the plants are lifted and may subsequently cause serious rotting in storage.

The fungus which causes this disease is carried over the winter by spores in the diseased leaves, both in soil and manure. Infected seed is also thought to be another means by which the fungus may winter over. In our experiments to determine this point, we have failed to secure any conclusive evidence that infected seed produces blighted plants. Our experiments, however, are still in progress, and it is yet too early to come to any definite conclusions from them.

Spraying experiments to prevent celery blight have been conducted at the Ontario Agricultural College for five years. The first year both lime-sulphur and bordeaux mixture were tested, but as the result of the first year's work indicated that lime-sulphur was not as effective as bordeaux mixture in the control of blight, it was not used the two following years. The next year, however, the high cost of copper sulphate, due to the war, made it very important to find some substitute for bordeaux in the control of blight of celery. A comparative test was made, therefore, of lime-sulphur, sulfocide and bordeaux mixture, for the control of celery blight. On account of the extremely dry summer in 1916, very little blight developed. Both bordeaux mixture and sulfocide appeared to control the disease, but even in the dry season some blight developed on the rows sprayed with lime-sulphur. In 1917, only bordeaux mixture and sulfocide were tried. The bordeaux mixture

again proved satisfactory in holding the blight in check, but the sulfocide did not. So bad did the blight become on the rows thoroughly sprayed with sulfocide that it became necessary to spray them with bordeaux mixture in order to prevent the blight totally destroying the celery crop.

These experiments indicate that sulfocide and lime-sulphur cannot be recommended for the prevention of celery blight. The results of the five years' experiments, however, show conclusively that loss from celery blight can be prevented by spraying with bordeaux mixture, 4-4-40 formula. Commence spraying when the plants are in the seed bed and repeat at intervals of a week or ten days. In very hot weather some growers find that it pays them to spray as often as twice

a week. The spraying should be continued as late in the season as possible, leaving only sufficient interval for the stain of bordeaux mixture to disappear before harvesting the celery. Some men spray within two or three days of lifting the celery and claim that the subsequent washing of the celery in preparation for market removes any stain of bordeaux.

When the plants are large, it is necessary to apply the spray with good pressure in order to insure covering every particle of them. To do thorough work it is often advisable to go over every row twice at each spraying, that is to go both ways on a row. Only thorough spraying pays. The results of our experiments have been confirmed by field tests conducted under the direction of S. C. Johnston, until recently Vegetable Specialist for the Ontario Department of Agriculture. Celery spraying is now practiced by many of the large growers in Ontario.

## Combating Cherry Leaf Blight

Prof. H. H. Whetzel, Ithaca, N.Y.

**O**NE of our most serious cherry diseases, both in the nursery and the orchard, is the leaf blight, shot hole or yellow leaf. Both sweet and sour cherries suffer from the disease. Some varieties are much more susceptible than others. In this State, of the sour varieties, the Early Richmond and Montmorency, suffer most.

The fungus which causes this disease is, like the apple scab fungus, much favored by rainy seasons. Like the scab fungus also, it winters in the old leaves of the previous season. From the overwintered leaves on the ground, spores are carried by the wind to the young leaves on the trees as they develop in



The eighth crop on a 13-year-old, Twenty-Ounce Tree, in the orchard of Jay E. Allis, of Medina, N. Y., is shown. Steady cultivation is practised and very little pruning is done when the trees are young. Mr. Allis spoke recently at meetings in the Niagara district.





The Canadian Standard Apple Box.

Fruit growers are urging that this box shall be discarded in favor of the Oregon box, which is a little shorter and wider.

the spring. Rain is necessary for their discharge into the air.

The affected leaves of sweet cherries show little evidence of shot hole, which is such a characteristic symptom of the disease on the leaves of sour cherries. In both cases there is eventually a distinct yellowing of the foliage which has given the popular name "yellow leaf." Affected leaves soon fall. In cases of severe infestation, the trees are almost completely defoliated. Where this defoliation occurs early, as it has the past season, the fruit fails to develop normal size and juiciness, and although it may turn red, is almost or quite worthless. The defoliation forces abnormal growth and diseased trees often go into winter with much immature wood. The common result is severe winter injury, not infrequently causing the death of the tree; at least a severe killing back of the branches results.

The notion that dormant spraying will prevent or greatly assist in controlling the disease is held by some of our growers. There is nothing in the known facts of the life history of the fungus to warrant such a belief. Nor is there any convincing field experience to support such a theory. An early application of lime sulphur or sulphur dust just before the blossoms open and when the leaves are expanding may possibly be important in very rainy springs, such as we experienced last season. An application just after the petals fall, another ten days or two weeks later when the shucks are falling, and a final application just after the fruit is picked will, if thoroughly made, give practically clean foliage throughout the average season. Additional applications may be profitable in very rainy seasons. Sour cherries may be sprayed with lime sulphur 1-50, or with bordeaux mixture, 5-5-50. Dusting is quite as effective, 90 pounds finely ground sulphur with 10 pounds powdered arsenate of lead being the mixture generally recommended. Bordeaux is apt to cause serious foliage injury if used on sweet cherries.

## Control of Orchard Insects

G. E. Sanders, Annapolis Royal, N.S.

**F**UNGICIDES exert a very appreciable influence on the killing value of the poisons used. When added to bordeaux mixture the average poison is decreased in killing by about 50 per cent. This would indicate that bordeaux should not be used with poisons for the control of serious outbreaks of biting insects, in fact, ordinary insects such as budmoth, fruit worm and tussock moth will often increase when a poisoned bordeaux and nothing else is used as a spray.

Where rapid killing is desired and bordeaux is necessary as a fungicide, one may use sodium arsenate as a poison, the formula for Nova Scotia being as follows: Dissolve one pound of sodium arsenate in water, use the water solution to slake five pounds of fresh stone lime, make up to 20 gallons. Dissolve four pounds of blue stone in another 20 gallons of water and pour the two together. The sodium in this combination causes the arsenic to act rapidly, offsetting the action of bordeaux in this regard. Poisoned bordeaux made in this way is about equal in value to lime sulphur, arsenate of lime, in killing biting insects.

### Value Reduced.

With lime sulphur and barium tetrasulphide it has been found that the killing value of the various poisons is reduced by from 15 to 20 per cent. This is not appreciable and the poisons may be regarded as practically as efficient with lime sulphur and barium tetrasulphide as alone. Where large quantities of poisons must be used for the control of biting insects it has been found impractical and injurious to foliage to add excessive quantities of poisons to fungicides, owing to lead arsenate when so used breaking up and forming so much soluble arsenic, and arsenate of lime when used in excess not being sufficiently protected from the action of the air by the sulphide solution.

Sodium sulphide and potassium sulphide solutions have been found to increase the killing value of poisons that are safe to use with them by from 10 to 15 per cent. This makes sodium sulphide a most valuable carrier for poisons where outbreaks of canker worms and such insects are to be combatted, and we have repeatedly used three pounds of soluble sulphur, two pounds of arsenate of lime to 100 gallons of water in such outbreaks with the greatest success—the only ill-effects from one application being from 1 to 10 per cent. of yellow leaf. In ordinary practice, we recommend the decreasing of the amount of arsenate of lime with

sodium sulphide to 1¼ lbs to 100 gallons, and the addition of from 15 to 25 pounds of hydrated lime.

In cases of outbreaks of biting insects, we have in the past recommended, and to-day rely on applications of straight lead arsenate, rather than on the combinations. From 10 to 15 pounds of standard paste lead arsenate is recommended to be applied soon after the larvae emerge. As this strength of lead arsenate is at least equal to lime sulphur and soluble sulphur as a fungicide, we feel free in recommending it straight at double or triple strength at any of the five spraying periods when an outbreak of biting insects threatens.

In comparing the various fungicides for their effect on the killing value of the poisons, the following figures from our work of 1916 gives the comparisons:

Four standard poisons used with Sodium sulphide are worth . . .	113.1
Alone . . . . .	100
With lime and sulphur . . . . .	80.8
With bordeaux . . . . .	56.5

## Cultivating Potatoes

Douglas Maynard, Leamington, Ont.

The biggest agent in keeping the potato field clean is the blind cultivation that is given with the drag harrow before the potatoes have come up. It is much easier to destroy the young weeds just after they have germinated than after they have obtained a firm foothold. The harrow can be kept going until the potatoes are quite a size. It is well, however, to harrow the sprouting potatoes in the afternoon. I have found that the potato sprouts are tougher in the afternoon than in the morning, and will not break off so easily when the harrow is passing over them.

Potatoes need plenty of cultivation through the growing season. Try and get over them with the cultivator once a week and give them an extra cultivation after each rainstorm to break up the crust and conserve the moisture which is so essential to potatoes.

## Black Heart

Prof. J. W. Crow, O. A. C., Guelph, Ont.

I am mailing you under separate cover a sample of some cuttings taken from three or four-year-old Baldwin trees, showing what we think is Black Heart. Are these trees of any use?—E. N.

If these trees are growing satisfactorily, I should leave them. In case you are in doubt, I should leave them for this year, after which, if they do not make satisfactory growth they should be replaced.



# Setting Out the Blackberry Patch

Frank Hays

FOR a number of years I have set my blackberry bushes in rows six and one-half feet apart, but I believe six feet will do just as well, so this spring I shall set them that width. I mark out rows with single shovel the same as marking out for potatoes. I use plants from my own patch, usually taking them from the rows of yearlings. Wherever a branch of the black raspberry touches the ground it takes root provided the soil is loose and the season not too dry. In a well grown patch there are hundreds of such plants. But it is a good plan to go in with a hoe about the middle of August and pull some dirt over the tops, even bending down some of the branches and covering them. It will help them to take root sooner and form stronger plants.

The system I am describing requires a lot of plants, and we must be careful to propagate all we can. The first trimming of the patch should be done the following spring. There has been a lot of discussion as to whether or not it is a paying proposition to provide a trellis of some kind to support the bushes. I am one of those who consider it well worth while to wire them up. Without support of some kind the wind blows them over and breaks off a lot of good canes. And at fruiting time a lot of berries are down in the dirt and have to be discarded. Also they cannot be thoroughly cultivated while in that shape and the grass and weeds have a better chance to start and the patch has a pretty slack appearance generally.

The material to wire them will last for years, so the annual expense for material will figure low. It requires considerable labor, but that is more than balanced by the saving in bushes, the better condition of the fruit and the convenience and satisfaction of having

them in such perfect order.

I set one post at each end of the row. With a post auger I bore down four feet and put in 6 foot posts, leaving two feet above ground. Set at that depth they require no braces. Next drive a stake every thirty feet in the row. To get the stakes I take seven-foot round, white cedar posts and saw them in the middle, then quarter each half and sharpen them with a hand ax. In that way one post, costing 30 cents, will make enough stakes for a row of berries two hundred and seventy feet long. Drive the stakes down good and solid but leave at least two feet above ground. Then nail to the stakes a cross-arm, after the fashion of the cross-arm on a telephone pole. The cross-arm should be one inch thick, fourteen inches long and two or three inches wide,—whatever one happens to have,—and should be nailed 20 inches from the ground.

Now everything is ready for two trellis wires. The size of the wire should be number 12 or 14. On one of the posts of each row should be fastened a couple of ratchets, one on each side of the post. The ratchet is a little device with which the wires can always be kept tight by turning up with a monkey wrench. They cost about three cents apiece and can be secured from most any mail order house. I would not think of doing without them. The best way to attach the ratchets to the post is to first fasten one to each end of a fifteen inch piece of trellis wire by twisting the ends of the wire in the form of a hook and hooking into the eye of the ratchet, then closing up the hook so it can't slip off. Place this wire and ratchets crossways against the back of the post 20 inches from the ground and staple it midway between the two ratchets;

then take the ratchets, one in each hand, and pull them forward toward the front of the post; attach end of trellis wire to roller of ratchet and string wire to other end of row, go around the post with it and back on the other side and attach wire to the other ratchet. Lay the wires up on the cross-arms and staple them one foot apart. Don't drive staple down tight against wire, but leave so wire will slip through as it is tightened. It is a good plan to put across a tie wire half way between the stakes, otherwise the weight of the bushes is apt to spread the wires a little too far apart at those points. Any old rusty wire will do for that purpose. A roll of old telephone wire will furnish material for a long time. Now tighten up the wires by turning up the ratchets and all is ready to begin trimming.

For trimming, use leather gloves. Go down one side at a time and with pruning shears cut loose from the ground all branches on that side that have taken root and as you go along bend all branches around and up between the wires, thinning out of course, if too thick, and removing all diseased branches.

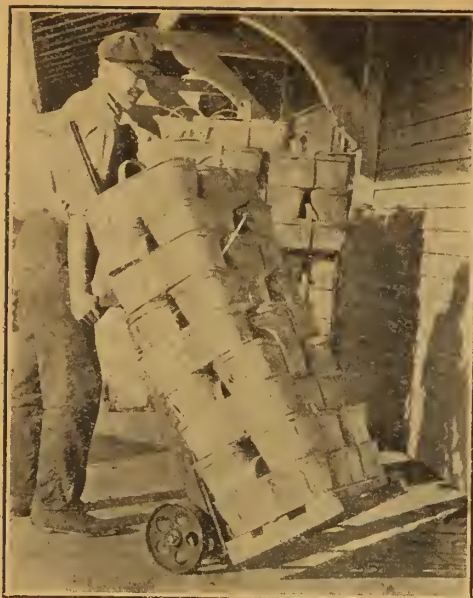
The idea of tying raspberries is, I know, more than most growers can swallow. But we tie grapevines, often making two or three ties to one cane; while with raspberries we never tie a branch more than once and much oftener two at a time, and frequently three or four at a time. Many are not tied at all as they are prevented from coming down by the tying of the others. So the work goes along quite rapidly.

To protect the hands while tying, wear cotton flannel gloves with the ends of the thumbs and forefingers cut off, which liberates the fingers so they can make the tie. The twine is cut with the pruning shears, which are held between the knees while making



The Skinner Irrigation System and Peach Orchard of the Vineland Horticultural Experiment Station, Vineland Station, Ont.





Trucking 6-qt. baskets with a Lizzie truck. Note how it saves labor. It has been proposed that the Dominion Government shall standardize this basket.

## Combating the White Grub

The white grub, which is the larvae of the well known May beetle or June bug, will, it is expected, cause serious injuries in Ontario this year. The Dominion Entomological Division reports that they were very plentiful last year, and that the grubs from the eggs laid last season will grow more quickly this season and be likely to cause serious injury to the roots of various field crops. The safest crops to grow on land which are suspected of harboring grubs are alfalfa, clover or buckwheat. Such crops as corn or potatoes should not be planted in 1918 on newly broken sod land in districts where the beetles were abundant in 1917. Corn or potatoes grown on land which grew the same crops in 1917, and which were kept cultivated and comparatively free of weeds during the flight of beetles in May and June, 1917, will be reasonably safe from injury by white grubs in 1918.

### Cultural Methods.

Under garden conditions, grubs are often turned up when the land is being dug or plowed. As many of these as is possible should be removed by hand and destroyed. Under acre conditions there are unfortunately no practical measures known to destroy the grubs when they are known to be present in the land, and destroying crops. Late summer plowing, which brings many grubs to the surface, crushing numbers of them and exposing others to adverse weather conditions, is useful, particularly in years when the grubs are changing to beetles.

Land known to be seriously infested and required for cropping in 1918, may be plowed in late spring, thoroughly harrowed and planted to a late crop. Such late cultivation will attract to the fields crows, blackbirds, and other birds, which are known to feed readily upon these grubs, particularly during their nesting period. Domestic fowl, such as chickens and turkeys, are also fond of white grubs and should be allowed the run of infested fields when these are being plowed.

## Underdraining the Vineyard

C. C. Roosa, Buffalo, N.Y.

**I**N spite of good surface drainage in my vineyard, there were many places that remained wet and soggy for days after rain storms. This hindered cultivation. As a remedy and to reduce the chances of future winter injury, I put in 3,100 feet of 3-inch drain tile, laid two feet deep. Of many things I have done, I believe this underdrainage has been the greatest

single factor in improving the yield, in ripening the wood and fruit, and in promoting culture in my vineyard. Last October I put in 1,200 feet more of 3-inch tile in certain areas where the ground was heavy and wet and the vines not robust. I expect to increase the tiled area from year to year if it changes the character of the soil, as it seems to have done in the areas tiled three years ago. With good underdrainage I shall not fear another such loss by winter injury as I suffered in the winter of 1911-12.

One day in July I was repairing the outlet of one of the tile drains when a thunder shower occurred. I went under cover until the shower, which lasted about twenty minutes, had ceased. Before the shower there was no drip at the opening, but when I returned to my work immediately after the rain ceased, I was surprised to find a gushing stream of water about three inches in diameter discharging from the opening. This line of tile with its branches drained about two acres. This shows how quickly surplus ground water finds its way into the tile instead of remaining to cause soggy and mud in clay soil. There have been periods of wet weather lasting for weeks since the tile was put in, but even after heavy storms with one or two inches of precipitation, the ground could be cultivated within twenty-four or forty-eight hours, depending upon atmospheric conditions. Mud puddles are a thing of the past in my vineyard.

Some seasons have been wet for weeks at various parts of the spring or early summer which resulted in rank wood growth. During such seasons I have ceased cultivation about July 1st, instead of August 1st, for the purpose of encouraging the ripening of both the wood and the fruit at the proper time. My experience thus far leads me to conclude that this is good practice on my soil.

## Fruit Jots

Early May is not too late to set out a few King raspberries, Senator Dunlap strawberries, Beta grapes, or Perfection currants.

Prune gooseberries and currants in May if it has not already been done. Take out old, weak wood and any new shoots that are crowding.

In planting, set your trees a little deeper in the ground than they were in the nursery. The reason is plain. The root growth has been reduced in transplanting, and the added depth is necessary to give the trees a grip on the ground equal to that which they had in the nursery.

the tie. It makes an easier job of it to trim a row, then tie a row. When the trimming and tying is completed, it is time to dig out the plants from between the rows and set out a new patch. When plants are out of the way, proceed to cultivate and hoe, and do it frequently until along toward fall,—especially the cultivating. The new growth will begin to start soon after we are through trimming. Sprouts from the crowns of these yearlings will shoot upwards very rapidly and we must give attention to those shoots for they are what form the bushes that bear the fruit the following year. Go down the rows occasionally with a knife and clip the ends from all shoots that are as much as eighteen inches high. The rows will soon be a mass of green and as attractive to look at as a well-kept ornamental hedge and will attract a lot of attention, especially along in July, when they are covered with ripening fruit.

We are now done with pruning until the spring of next year, when all badly diseased bushes must be removed and the branches on those we leave cut back.

The bushes of this second year's growth are much larger and stronger than those of the first year, and with the support of the wire will stand without tying. It is a good plan at this time to bring the wires on the cross arms closer together, also to tie the wires between the stakes together. By so doing, the bushes are more firmly held back. Rake brush from between the rows and cultivate until crop is gathered; then mow it off and plow it up. Managed in this way the very finest of black raspberries can still be profitably grown.



# Apple Scab and Its Control

Prof. H. H. Whetzel, Ithaca, N.Y.

**A**LTHOUGH apple scab is the oldest and best known of our apple diseases, we have not yet completely mastered it. The scab fungus seems to be one of the most persistent and versatile of our fruit foes. In most disconcerting cooperation with the weather, it constantly keeps us guessing. Even the most expert and confident fruit grower is every now and then put to rout by this surprising little fungus. Eternal vigilance, stick-to-itiveness and study of its habits can alone insure a profitable contest with this foe.

Last season, like the preceding one, was exceedingly favorable to the scab pathogene and correspondingly unfavorable to the grower in his fight against it. The seasonal history of the scab in this State, as well as in other apple growing regions, where the disease appears, is consoling. The disease exhibits periods of extreme severity, followed by a series of years during which it gradually becomes less and less destructive, often to the point of all but disappearing, when with returning favorable seasons it again assumes destructive proportions. There is good reason to believe that the worst is for this time over, and that the next few years are to be years of decreasing scab severity. This does not mean that scab may be expected to disappear as by magic, and that spraying or dusting will be unnecessary. It means, however, that with weather conditions less favorable to the fungus, the grower will have the advantage, and, if he makes the most of it by timeliness and thoroughness in applying the dust or the spray, will be able to recover his losses of the seasons just past.

The experience of the last two seasons has demonstrated most convincingly the importance of preventing the primary or first infections, especially in rainy seasons. Growers who made timely and thorough applications during the pre-blossom period, almost without exception got a high percentage of clean fruit. In seasons when cool, rainy weather occurs during the pre-blossom period, primary infections are certain to be general and abundant. If the rains come early while the leaves are emerging and before they have unfolded and expanded, the infection will be on the under sides, which alone are exposed to the spores. If the rains come late, that is, after the leaves have expanded and just before the blossoms open, the spores from the old leaves on the ground will fall on the upper surfaces and on the blossom pedicels, caus-

ing the primary infections there. This will result not only in the primary scab spots being on the upper surfaces of the leaves instead of on the under surface, but may also spot the pedicels, causing the flowers to shrivel and fall without setting to fruit. Last season the primary infections occurred almost without exception very early and on the underside of the leaves. Thus those who made the applications very early (what is commonly called delayed dormant) got best result. But this may not be the vital time to spray this season. As a matter of insurance, this delayed dormant spray may well be made. But if the weather is dry and sunny for some days following the application, the developing buds will expose the blossom pedicels and upper surface of the leaves, which must then be protected by another application before the blossoms open. If the weather is clear and

sunny during the early stages of bud development, one may well delay the first application as late as weather prospects seem to warrant. At least one application before the blossoms open should always be made. Remember, however, that the weather is the factor that determines when the applications, be they one or two, are to be put on. The man who dusts will have a distinct advantage here, because the times for effective applications before blossoms open are always very limited, a day or two at the most.

Again, dusting has proved to be as effective as spraying in the control of apple scab. In eleven orchards for which we have records for the season of 1917, the average shows: checks, 54.5 per cent scabby; sprayed, 31.6 per cent scabby, and dusted, 31.0 scabby. The discrepancy between the two methods this season is generally less than that of last season. The contention of last season that dusting would become increasingly satisfactory and effective from year to year with experience in its use, is thus borne out.

## Two Necessary Sprays

Dr. A. J. Grant, Thedford, Ont.

**T**HERE are two sprayings which we should consider indispensable; the one just before the blossom opens, and the one applied when the petals have about all fallen. I do not see how we can avoid two good drenchings at these periods, and have any certainty of a good crop, but the dormant spray might be omitted if you are sure that you are free from San Jose Scale. Of course, we are speaking now of orchards that have been cared for, and therefore are free from Oyster

Shell Bark Louse. If your orchard is in a scale infested district, or if you do not feel like taking any chances, the dormant spray might be applied in the late fall, or at any time that the mixture could be handled without freezing. This covers what we regularly call our three standard sprays, and subsequent applications should be governed entirely by local conditions.

I almost invariably apply at least one spray after the fruit has formed, and sometimes two, but I have seen many



A Wealth of bloom in an orchard at Starr's Point, King's County, Nova Scotia.





No wonder fruit growers like to have National Service girls help them in their orchards.

seasons when these sprays would be quite unnecessary, and therefore, unprofitable in certain districts, when they might mean everything in a section not many miles away. This is one place where judgment on the part of the grower is of great value, as nobody can advise him, unless he is right on the job so as to understand the local weather conditions.

We are all watching the process of dusting with much interest. The procedure looks very rational. It is simply an old practice revived. The experience of years ago demonstrated that it would control fungus diseases, but the manner of application was chiefly by hand over very small areas. Personally, I have a great deal of confidence that it will finally supersede the present cumbersome method, but I fear that many improvements are necessary both in the machinery and the material before we can make the change.

A good grower pretty nearly knows what his "batting average" is going to be when he starts his men out with the spray pump; they understand the work thoroughly. Records up to date have not shown dusting to give any cleaner fruit, and the real good records have mostly been produced experimentally by men of more than usual ability along these lines, but we are all ready to admit that dusting entails less work, while the cost is not much greater. You cannot junk your spray outfit anyway until something is put in dust form to control San Jose Scale, and the new method will probably be handed to us on a more practical basis by that time.

## A New Formula for Bordeaux

G. E. Sanders, Annapolis Royal, N. S.

The Thomsen-Buchanan formula, two pounds bluestone, ten pounds lime to forty gallons of water is going to be one of the most popular sprays in Nova Scotia for some time to come. In the past the big objection to Bordeaux, outside of the russetting caused by it, has been the trouble of making the mixture. In 1917 we introduced into Nova Scotia a method of shortening the time taken in mixing by the use of prepared or hydrated lime, at the same time experimenting in a commercial way with pulverized bluestone ground to pass through a screen twenty meshes to the inch. We used this last material in the orchard of Mr. S. B. Hatheway, of Fredericton, N.B., with complete success in 1917, in the following way. Weigh out the pulverized bluestone and dump it into the spray tank, start the engine and agitator and start filling. In the five to fifteen minutes of filling with the agitator running, the bluestone is dissolved. As soon as the tank is full, the agitator still running, add the hydrated lime and then the poison. This method calls only for the handling of dry material and makes the engine do what previously took a great deal of time and a system of large overhead tanks in a commercial orchard. Bordeaux should always be tested and the best way is to use litmus paper, which can be obtained at any drug store. If it does not turn the paper blue at first, add lime until it does.

## Treating Injured Fruit Trees

If a tree is badly girdled by mice or rabbits it usually dies if left untreated. If, as soon as the wound is noticed, it is cleaned and covered with grafting wax or some paste, such as sulphur, cowdung and clay, and wrapped with cloth to exclude air and prevent the wood from drying out, there is a possibility of saving the tree if the girdle is a small one, as the sap which rises through the wood will continue to do so, and returning through the inner bark in an elaborated condition will cause growth to be made all around the upper part of the wound, and if the latter be not too large there is a chance of its healing over. If, however, the wood becomes dry before the bandage is put on, the tree will almost certainly die, although it may continue to grow throughout the season.

When the wax and bandage are applied, the tree should be headed back considerably to lessen the amount of transpiration of moisture, as there will not be as much sap rise as if the

tree were uninjured, and the wood will thus dry out sooner than if it were headed back. If the girdle is near the ground, in addition to covering the injured part with wax or cowdung and clay, it is advisable to mound up the soil about the tree to cover the wound and thus help to prevent the wood from drying out. The mound should be up about six inches above the wound and be about two feet across at the base. Bridge grafting may also be used with success.—Experimental Farm Note.

## Club Root of Cabbage

Will you kindly give me information about the cause and cure of Club Root in cabbage plants?—W. F., Islington, Ont.

This disease is very troublesome in the Maritime Provinces. As yet it has not become established in Ontario, although cases of it have been found. It attacks radishes, cauliflower, turnips and other vegetables of the same family. It is caused by a slime fungus. Interesting information concerning it is given in Bulletin 258, recently issued by the Ontario Department of Agriculture, entitled "The More Important Fungus and Bacterial Diseases of Vegetables in Ontario."

Affected plants wilt noticeably. On their roots will be found irregular thickenings and swellings sometimes two to three inches in diameter which gives the disease its name. The tops of diseased plants develop very slowly. Cabbage and cauliflower, when attacked, form very little heads, and often the plants die.

When plants develop the disease dig them up, taking care to get all the root, and burn them. When the disease becomes established in a field, a four or five year rotation of crops should be practised so as to avoid growing turnips or cabbages on the same soil for a number of years. Applications of lime every few years will materially lessen the severity of the attacks. Burn all refuse from the diseased crop.

For best results with potatoes, land should be fairly rich. I use 20 tons per acre applied in the fall and plowed down. I have also found that potatoes will pay good profits on commercial fertilizer, provided a large enough application is given to make its effect felt. I found last year that it took at least 600 lbs. of a 2-10 fertilizer per acre to make any appreciable difference in the yield. A thousand pounds, however, increased the yield and resulted in earlier maturity. This works out at only four cents per rod of row and a slight increase in the yield will easily pay for it.—Douglas Maynard, Leamington, Ont.



# Onions and How to Grow Them

Mrs. Dell Grattan, Port Arthur, Ont.

ONE of the first things we expect to use from the garden is green onions; so many dishes are made appetizing by their use. They are recognized as something of a medicine and are allowed in society for the virtue there is in them.

The earliest onion of all is the Egyptian perennial. They grow and multiply so rapidly that in an incredibly short time there will be plenty of delicately flavored onions so delicious, early in spring, when the green things are scarce. As the weather becomes hot in midsummer, these onions become tough and strong-flavored; but before they are unfit for use the yellow Dutch will be ready. The yellow Dutch sets do not multiply, but grow into green onions, and later into large, firm bulbs, which, if properly ripened, keep well for winter use.

Many people have the idea that onions cannot be grown successfully from seed. This I know from experience to be a mistake, for I have grown them for years with great success. On a small farm or place where one is seeking to furnish him or herself employment at good wages, if not great profit, the onion crop is perhaps the best solution of this problem. Most years the supply is hardly up to the demand, and the labor required by hand to raise a good crop will not be given by most farmers who can do their work on large farms with machinery and horse power. For this reason, and the fact that it takes very rich land to grow good onions, the small farmers will do well to investigate the possibilities of the onion crop. Give your boy or girl a chance to make some money, and I am sure neither you nor they will be disappointed in the results if they follow the methods I took to grow them.

Onions will not do well on new land. They require well-worked, rich soil, not too loose. The land should be plowed deeply and harrowed in the fall. The same land may be used year after year, and the last crop will be better than the first. First of all, be sure you have good seed and of a kind suitable for your climate.

Here, in the West, Extra Early Red and the Yellow Danvers have both done well with me. The Extra Early Red is one of the best for the Northwest. I do not know of a better onion for northern latitudes, where the seasons are short and cool. It can be made to produce fine marketable onions in 90 days from the sowing of the seed. It is hardy, reliable, solid, heavy, keeps well, and has a mild flavor. Some object to its color—a rich red—preferring the Yellow Danver in this respect. It is a

good onion, both for the home garden and for market, combining reliability in ripening with large yield. The skin is pale yellow; flesh pure white.

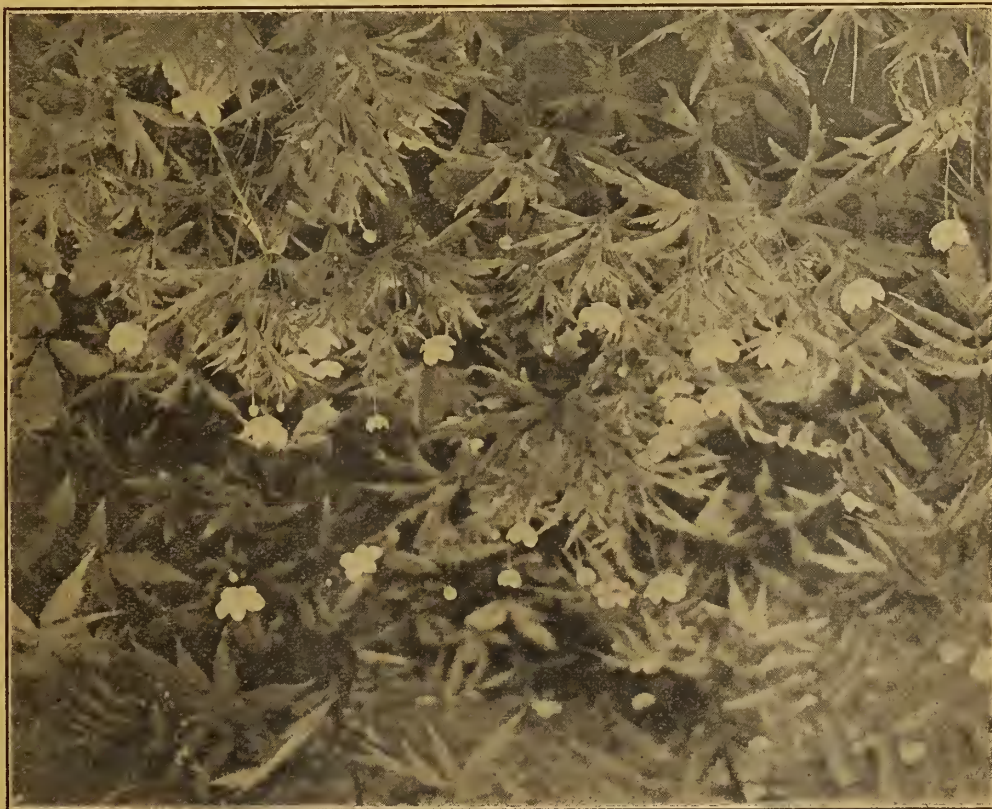
Have the ground thoroughly worked and the surface firm and smooth. Sow the seed in rows, running east and west, at least a foot apart. I have found it a good plan to mix about one-eighth of radish seed with the onion seed. The radish, having earlier sprouting tendencies than the onion, will act as guides in early cultivation. The seed must be sown very early in the spring, just as soon as the ground can be prepared. Freezing and thawing does not hurt onion seed as much as a great many other plants. If the seed does not show up for four weeks, do not be alarmed; it will be ready to sprout at the earliest opportunity; it starts very slowly.

Keep using the cultivator frequently, taking care not to stir the soil too deeply or to collect it about the growing bulbs. Never allow the weeds to get ahead of the young plants. When they are about two inches high, they should be thinned out, and the radish plants removed. This thinning should leave a good onion about every four inches in the row. Don't be afraid to leave so much space for they will require it, every bit, unless you intend to sell them

for green onions. Then, of course, you may leave, say, two inches apart and pull every second one for green ones, leaving the others to get ripe. Never allow them to get crowded, and do not leave a single weed. Always see to it that you do not draw the earth to them, or work in the garden while the ground is wet.

When the bulbs attain a good size, say, half grown, begin to roll down the tops with a hand roller or even a barrel, flat to the ground. See that every top is broken, laid flat and kept there. It is wonderful how those bulbs will enlarge after the tops are bruised. When full-sized, or the cold weather coming on, it is time to harvest them. Pull them and leave them in rows on the ground for a week or even longer, if the weather is favorable. Then cut off the tops close, and leave them in wide-spreading piles, so they can be covered up at night and exposed to the sun in the day.

If you have a warm, dry floor upon which you can spread them, it would be all the better. They should be thoroughly dried before storing for winter. Open racks suspended in the air in a dry, cool room that does not freeze should be used. The onions should not be more than three inches deep on each shelf or rack, and the rack should be made of wire or wooden slats, so that the air can pass freely through. I dispose of all not required for home use in the fall.



The Anemone, whose advent we so eagerly welcome in the spring, belongs to a species of plants, nearly all of which can be propagated by both root-division and seed. They make hardy and attractive garden and border plants. They should be planted as early in the spring as possible in very rich soil and partial shade.



## Blanching Celery

E. P. Smart, Brockville, Ont.

There are three principal methods of growing and blanching celery. The European method is, to plant in a trench about a foot wide and nine or ten inches deep. This trench has a bed of rich soil at the bottom wherein the young celery plants are planted a few inches apart. Gradually as the plants grow, they are covered with the soil banked up at the sides of the trench, thus bleaching them gradually. This system has been used for generations and excellent celery has been produced by this method. One objection to it is that in this country our heavy rains often have a disastrous effect on the celery trenches and necessitate much extra work.

The Second Method, level planting and gradually banking up the celery with earth on each side of the rows, is the one most commonly used in these days and especially on this side of the Atlantic. Thus planted, the celery is in rows of about four or five feet apart. This allows room for banking up with earth. The plants are set in the rows at a distance of four to six inches. In planting the celery, care is necessary to make sure that the plants are not set too deep, thus covering the heart and impeding the growth. If given copious watering at the time of planting, no more water is necessary until the plant has begun to grow. Frequent cultivation or stirring of the soil, however, is important. This cultivation of the soil about the celery plants should not be too deep as the celery roots are liable to injury. The blanching process is accomplished by gradually banking up the earth about the plants, at the same time holding the stems together, that the earth may not get into the heart of the plant. This is called the "Handling process." It need not be begun until September. Where celery is grown in large quantities, the banking is accomplished by means of a special kind of plough. Further banking up is needed later in the season if the celery is to be bleached by earth.

If the celery is to be bleached by boards, they are placed on each side of the rows of celery and held in place by stakes or by being fastened together at the top, strips being nailed across from one board to the other. Where boards are not available and only a small quantity of celery for home use has been planted, it may be bleached by being banked with paper. Any kind of paper, newspapers, wrapped about the plants will suffice, though it is possible to buy a specially prepared paper for this purpose.

A third method of blanching celery may be called the "Self-Blanching" method since no banking up is needed. This method should not be attempted except where celery is grown in large quantities for commercial purposes. The ground for this kind of planting must be tremendously reinforced by manure, as the plants are placed as close together as possible, just enough space being allowed for the full grown plants and roots. It is claimed that by this method the celery grows more upright and blanches itself, as the foliage completely covers the stalks in the bed or field. Celery grown this way lacks the delicacy of the celery grown by the other methods, but the system is much quicker. The celery can of course be more fully blanched afterwards by storing in cellars.

## FLORAL PROBLEMS

Wm. Hunt, O.A.C., Guelph

I have a number of clumps of tulips and daffodils in my flower borders that have got very thick and crowded. The flowers have been few in number the past year or two and of poor quality. Will you please tell me the best way to treat them.—J. T. E., Brantford.

A label with the name written on it, or a stick, should be put in the ground when the bulbs are in flower to mark the spot where they are growing. About the first or second week in August—not later—the bulbs should be dug up. The large bulbs may be picked out and planted less thickly about four inches apart at once in the border, or they may be dried a little in a shed for a few days and put in a cool cellar and planted early in October. The small bulbs can be planted rather thickly in nursery rows, in a corner of the garden. These last will make good flowering bulbs in a year or two. All spring flowering bulbs can be treated in the way mentioned.

### Oriental Poppies.

When is the best time to sow seed of Oriental Poppies? I have never been able to raise them from seed, although I have tried several times.—M. J. R., Chatham.

Oriental poppy seed may be sown out of doors at any time from the third week in May until the middle of August; the end of May or early June being the best time. Sow the seed in rather sandy soil in a shallow box not over three inches deep; an empty had-die box with seven or eight half-inch holes bored through the bottom for drainage is suitable. One part sand, one part fine leaf mould (black soil from the bush) and about six parts of loamy potting soil would make a good soil for the seed. Press the soil fairly firm, sow the seed broadcast, and cover

the seed very lightly with finely-sifted soil, so as to cover it with barely one-eighth of an inch of soil. Place the box where the very hot sun does not strike on the box. A small piece of cheese-cloth spread over will be sufficient shade, or the box may be placed under a tree if not too dense and shaded. Too much shade must not be given. Put a piece of wet burlap (sacking) on the surface of the soil before watering the seed, to prevent rinsing. Do not shade the plants after they have developed two or three leaves. The critical time is just when the seed is germinating, and the plants coming through. An hour of hot sun then would kill the young plants. Set plants out in the border the end of August, or not later than second week in September. Seed of all hardy border perennial plants may be sown out of doors early in June in boxes or in the open ground. Oriental poppies do not transplant well, hence the need of sowing the seed in shallow boxes, as it prevents deep rooting. Oriental poppy seed may be started indoors in March or April, and transplanted out of doors later on.

### Transplanting Paeonies.

The clumps of paeonies in my garden have become very dense and crowded. When is the best time to transplant them.—W. J., Orillia.

It will be best to leave them until autumn before transplanting them. About the last week in September or early in October is the best time to divide and transplant paeonies. If moved in the spring, and the weather turns hot and dry, spring-planted paeonies are not a success.

### The Gas Plant.

Can the gas plant be grown from seed? I can never get the seed to germinate.—R. B., Owen Sound.

The seed of the gas plant (*Distamnus fraxinella*) is encased in a very hard shell, hence it does not germinate quickly. The seed should be put in quite warm water, almost hot water, temperature about 140 Fahr., and allowed to stay in the water eight or ten hours. It should then be sown in rather sandy soil in a shallow box and placed in a temperature of about 65 degrees. It may be sown out of doors in the summer. By treating the seed in the way mentioned, there should be no difficulty in starting the seed.

If there is any old apple tree that you want to top graft, it should be done at once. This should be done just before the buds start to burst, but if you can get scars that are dormant, it may be accomplished up until the buds are well out.

Those grape cuttings you took in the fall should be set out very soon now, before the dry weather comes.



# Aphids or Plant Lice and Their Control

Dr. C. Gordon Hewitt, Dominion Entomologist

Aphids, or plant lice, are the small, soft-bodied insects commonly found clustering, usually in dense colonies, on almost all kinds of plants. Most of our common species are green; others again are reddish, brown or black; and some kinds are covered with a white powdery or woolly material. They are insignificant in appearance, but because of their tremendous powers of multiplication they are capable of inflicting serious losses to important greenhouse, orchard, garden and field crops.

## Nature of Injury.

The presence of aphids on plants is frequently indicated by a curled and distorted condition of the leaves. The leaves and other affected parts may turn yellowish, wilt and in extreme cases may die. These injuries are caused by the insects extracting, by means of their piercing, sucking mouth parts, the life-juices or sap from the plants.

## Life Cycle.

Commencing with the eggs, which are deposited on the food plants in autumn and which hatch in spring about the time vegetation is reviving, a typical aphid life-cycle is as follows: All the insects which hatch from the winter eggs develop into wingless females. This first generation is then rapidly succeeded by brood after brood of winged and wingless plant lice until by fall as many as thirteen or fourteen generations may have arisen. All the spring and summer forms are females which, without the intervention of a male, give birth to living young. As the summer forms may commence to reproduce seven to ten days after birth and as each female may produce over fifty young, it is not at all surprising that frequently the plant lice become so numerous that it is almost impossible to insert a pin into the infested portion of a plant without touching an insect. In

the fall, true males and females appear and after pairing the females deposit the winter eggs.

Many species of aphids have the peculiar habit of abruptly changing their food plants. For example, the rosy apple aphid by means of winged forms deserts the apple during the summer and migrates to plantains, on which hosts the species feeds and breeds. In the fall the return migration to apple takes place.

## Control of Plant Lice.

Stomach poisons such as Paris green and arsenate of lead are wholly ineffective against plant lice. These insects can only be destroyed by the application of sprays such as soap solutions and tobacco preparations which kill by contact.

Among the best contact insecticides for aphid control are:

**Whale Oil Soap.**—This must be dissolved in boiling water. For greenish aphids, it should be used in the strength of 1 pound to 6 gallons of water; for brown or black aphids, a 1-4 solution should be used.

**Nicotine Sulphate.**—Commercial nicotine sulphate (40 per cent) preparations are sold by nearly all seedsmen. They may be used in combination with any of our garden or orchard sprays. When used alone, 2 pounds of dissolved soap should be added to every 40 gallons of spray.

## Preparing the Soil

The garden soil must be rich in plant food materials and well worked to make it loose and warm, if best results are to be obtained. Plenty of well rotted barnyard manure applied early and plowed or spaded under will furnish the plant food materials. Spading is the best way to work the soil in gar-

dens less than 40x150 unless it is part of a larger field. In the village and city backyard gardens, hand spading is better than poor plowing. The spading should be as deep as possible—six to eight inches—but not deep enough to turn up much hard subsoil.

The surface should be smoothed by harrowing or raking, the seed bed as nearly perfect as possible to let the plants grow to best advantage. The better the tilth the easier it will be to keep weeds under control.

In the southern districts all the hardy vegetables can be sowed or planted about May 1. In the cooler sections it is not possible to get the land ready until later. Such crops as early carrots, early beets, lettuce, kohlrabi, onion, parsnips, peas, spinach and turnips can be sown now.

## Pruning Gooseberries

When pruning gooseberries and currants it is well to remember that the finer and most fruit is born on the younger wood. Two year old wood is at its best. Four year old wood is not nearly as good. Cut off the oldest canes each year at the surface of the ground and thin out the weakest of the young growth, leaving the stouter shoots for renewal. Eight to twelve canes make a bush of ample proportions.

Growers sometimes clip back the annual growth. The effect of this practice is to increase the denseness of the bushes. This is not desirable, as the bushes are generally sufficiently crowded and difficult to pick. Renewal can be secured most effectively by saving some of the young sprouts which spring up from the roots each year.

## Procure Choice Varieties

John Gall, Inglewood, Ont.

The ordinary method of saving tomato and all other seeds does much to prevent us from making any advance in procuring choice varieties. If only the pains were taken to always select the first matured fruits and the finest specimens only, for seed, and so continue, there is no doubt whatever but it would amply repay the trouble taken.

No doubt the market gardener grudges to give his first picking of fruit, which will certainly bring him in a nice little sum, knowing that he can get plenty of seed when his crop is scarcely worth the gathering for market purposes. But, here the mistake is made, for the seed saved from the first fruits would certainly pay him many times over, if used for sowing the following season, than any sum it might realize on the market.



Glass shelters for protecting and forcing young plants in the early spring.



# The Canadian Horticulturist

COMBINED WITH

## THE CANADIAN HORTICULTURIST AND BEEKEEPER

with which has been incorporated  
The Canadian Bee Journal.

Published by The Horticultural  
Publishing Company, Limited.

PETERBORO AND TORONTO : ONTARIO.

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The Only Magazines in Their Field in the  
Dominion.

Official Organs of the Ontario Fruit  
Growers' Association, and of the  
Ontario, Manitoba and New Brun-  
swick Beekeepers' Associations.

1. The Canadian Horticulturist is published in  
three editions on the 25th day of the month  
preceding date of issue in three editions, as  
follows:

**FRUIT EDITION:** This edition is devoted  
entirely to the interests of the commercial fruit  
and vegetable growers of Canada.

**FLORAL EDITION:** This edition is devoted  
to the interests of amateur fruit, flower and  
vegetable growers, and includes a section for  
backyard gardening. It meets the requirements  
of town and city people especially.

**APICULTURAL EDITION:** This edition is  
known as The Canadian Horticulturist and Bee-  
keeper, and is devoted to the interests of the  
beekeepers of Canada. In this edition several  
pages of matter appearing in the first and  
second issues are replaced by an equal number  
of pages of matter relating to the beekeeping  
interests of Canada.

### SUBSCRIPTION RATES

The subscription rates of the Fruit and Floral  
editions are as follows:

One year .....	\$ .50 cts.
Three years .....	1.00
To societies and associations ..	.40 cts.
Three new subscriptions or	
two new and one renewal	1.00

The subscription rates of The Canadian Hor-  
ticulturist and Beekeeper are:

One year .....	\$1.00
Three years .....	2.00

For foreign subscriptions and subscriptions in  
the city of Toronto, owing to the postal regula-  
tions, add 25 cts. a year extra for postage.

### CIRCULATION STATEMENT FOR MARCH.

Fruit Edition .....	2,071
Floral Edition .....	5,694
Beekeeper .....	1,348

Net Paid Circulation .....	9,113
Total Printed .....	9,964

Advertising rates, \$1.40 an inch. Copy re-  
ceived up to the 20th. Address all advertising  
correspondence and copy to our Advertising  
Manager, Peterboro, Ont.

### OUR GUARANTEE

We guarantee that every advertiser in this  
issue is reliable. We are able to do this because  
the advertising columns of The Canadian Hor-  
ticulturist are as carefully edited as the reading  
columns, and because to protect our readers we  
turn away all unscrupulous advertisers. Should  
any advertiser herein deal dishonestly with any  
subscriber, we will make good the amount of  
his loss, provided such transaction occurs within  
one month from date of this issue, that it is  
reported to us within a week of its occurrence,  
and that we find the facts to be as stated. It  
is a condition of this contract that in writing to  
advertisers you state: "I saw your advertise-  
ment in The Canadian Horticulturist."

Rogues shall not ply their trade at the ex-  
pense of our subscribers, who are our friends,  
through the medium of these columns; but we  
shall not attempt to adjust trifling disputes be-  
tween subscribers and honorable business men  
who advertise, nor pay the debts of honest  
bankrupts.

<Communications should be addressed

THE CANADIAN HORTICULTURIST,  
PETERBORO, ONT.

## EDITORIAL

### Causes of High Prices

The results of the investigations conduct-  
ed last fall by the members of the Fruit  
and Vegetable Committee of the Canada  
Food Board into the profits of a number of  
the largest wholesale fruit and vegetable  
houses must have been a surprise to those  
people who believe that most middlemen  
are making enormous profits. The auditors  
found that the margin of profit of these  
firms was so small as to place their invest-  
ment in considerable danger at times, be-  
cause of the risk they ran of sustaining  
losses that might seriously impair their  
capital.

Investigations that have been conducted  
in the United States by Arthur B. Adams,  
Fellow in Economics, of Columbia Univer-  
sity, showed that from thirty to forty per  
cent. of the margin between farm prices  
and retail prices of the goods which pass  
through the middleman system is due to  
the great losses from decay—that is, this  
percentage of the margin goes to pay for  
goods which are bought from farmers but  
never reach consumers. Some one must  
stand the loss, so it is added to the price  
of the goods which do not decay.

One reason for the high expense of get-  
ting perishables from producers to con-  
sumers that is ordinarily overlooked is the  
fact that these goods are handled in very  
small packages, such as, will ordinarily be  
purchased, at one time by the average fam-  
ily. This involves a great deal of handling,  
as the average family seldom buys more  
than a few pounds of a perishable at a time.  
In order that the producer may obtain a  
given quantity of perishables it becomes  
necessary to grade, pack, and ship the goods  
in small packages. If the goods are mar-  
keted by several middlemen, as of neces-  
sity is often the case, they have to be gar-  
thered in comparatively small quantities from  
individual producers, made into large ship-  
ments and then broken up into small pack-  
ages for distribution to consumers. This  
naturally involves considerable expense  
without any special value to anyone con-  
cerned. To all of this must be added the  
expense of storage and refrigeration, as  
well as of transportation. Such charges as  
these mount up rapidly and result in the  
middlemen realizing much smaller profits  
on the whole than are commonly supposed.  
Not until our national laws are changed in  
ways that will tend to greatly reduce the  
cost of production not only of fruit and  
vegetables, but of the supplies that fruit  
and vegetable growers require, will it be  
possible to materially reduce the handling  
charges of the middlemen.

### The Great Danger.

So much is being said in the press and  
from the public platform on the necessity  
for increased production and on the con-  
servation of food, there is grave danger that  
the public will become satiated and cease  
to heed the warnings that are being given.  
There are indications that this condition  
has already been reached. If so it will  
prove a calamity if the condition increases  
or continues.

The reason for the lethargy of the public  
is not hard to understand. None of us as  
yet have suffered from lack of food. Be-

cause there appears to be plenty for all it  
is difficult for us to realize that other peo-  
ple may be in want. Seeing is believing.  
If we could only visualize the pitiful scenes  
that are taking place in Belgium, France  
and other countries we would soon realize  
how imperative is the necessity that full  
heed shall be paid to the warnings that  
are being issued.

Returned missionaries from Palestine de-  
scribe children dying by the hundred from  
mal-nutrition. From Belgium come reports  
of children being allowed in the bread line  
only every third day and of their bodily  
condition being inspected to see if they are  
strong enough to go an extra day or two  
without food in order that other children  
not so strong may have a little more. A  
short crop on this continent this year will  
mean disaster not only in Europe, but on  
this continent as well. War time garden  
production therefore is not a joke but a  
binding necessity. Every person who can  
take part in it should. We must each re-  
cognize the obligation that rests upon us  
and be willing to do our bit.

### Death of R. B. Whyte

Probably no amateur horticulturist in  
Canada was better or more favorably known  
than the late R. B. Whyte, of Ottawa, whose  
death occurred on April 15th. Through his  
long connection with the Ottawa Horticul-  
tural Society, and of late years with the  
Ontario Horticultural Association, besides  
which for many years he has been a direc-  
tor of the Ontario Fruit Growers' Associa-  
tion, Mr. Whyte had become well known  
not only in Ottawa, but throughout the pro-  
vince.

Mr. Whyte made a success of gardening  
because he loved it. His heart, to a very  
large extent, was wrapped up in his garden,  
where he took the keenest delight growing  
things and in showing and giving away the  
results of his labor to others. The success  
he achieved was so unusual as to attract  
wide attention, with the result that descrip-  
tions of his garden was published fre-  
quently in gardening and other publications  
not only in Canada, but in the United States  
as well. During the past few years Mr.  
Whyte took special interest in some com-  
petitions arranged and conducted by himself  
among the boys and girls in Carleton and  
Russell Counties in the growing and exhibit-  
ing of garden products. In his death the  
cause of horticulture in Canada has sus-  
tained a distinct loss. Many of his friends  
not known personally to the members of  
his family sympathize with them in their  
loss.

### Decoration Day

The wide-spread desire of the people of  
Canada to give expression to their sense of  
appreciation of the sacrifices which have  
been made on their behalf by the men who  
have laid down their lives at the front  
should be given a suitable opportunity of  
expressing itself. In what better way can  
this be done than by establishing a National  
Decoration Day? There is hardly a munici-  
pality in Canada, in the English speaking  
sections, at least, which do not mourn the  
loss of some bright young life or lives. Tablets  
have been erected in churches,  
schools and business offices in memory of  
many of those who have paid the great  
price. Were a National Decoration Day es-  
tablished it would give the public an oppor-  
tunity to place floral wreaths in suitable



places and to hold special services in memory of those who have fallen.

The first step towards inaugurating such a day should come from the horticultural societies. What society will have the honor of moving first in this matter? Just as the observance of Mother's Day leapt into quick and wide-spread popularity so the observance of Decoration Day would as quick-

ly be generally observed throughout the Dominion.

Mothers' Day will be celebrated in many churches and schools during May this year as usual. Has your church overlooked its observance hitherto? If so, now is a good time to plan for a suitable recognition of the day this year. It is a day that deserves to be observed.

## : SOCIETY NOTES :

### Bird House Competition

The Guelph Horticultural Society distributed a circular this spring giving the rules and general information governing its second annual bird house competition, which was held early in April. The contest was open to both boys and girls. The houses had to be the sole work of the exhibitors, who were given the right to sell them. All houses had to be made in a way that would permit of their being cleaned out. Water tight roofs were required, as well as a few small openings at the top for ventilation. Except for martin houses and robin and phoebe shelters the entrance holes had to be made near the top. Dimensions for the different classes of bird houses were given. Contestants were advised to keep their eyes on the family cat. Over thirty dollars in prizes were offered. Three prizes each were offered for martin houses, wren and chickadee resting boxes, robin and phoebe shelters, for the best design for a bird bath and for the best feeding shelves.

### Owen Sound

While the work of the Horticultural Society in Owen Sound has been going on quietly for a number of years, last season was one of the most active in its history. In the spring the society identified itself with the back-yard garden movement, the president of the horticulturists proving himself especially effective in that work. The special feature of the season's work was a series of flower exhibits, beginning with a tulip display in June, and ending with the annual show in August, and an aster display somewhat later. The society has become interested in roses, and as a result several hundred rose bushes were planted last year. Judging from the July rose exhibit, it would seem that rose culture will become a success around Owen Sound. The prospects are that more roses than ever will be set out in 1918. Another gratifying feature of the society's activity is their work with pupils in the schools, who are being interested in vegetable growing. Last year's children's exhibition was creditable, and this year still more extensive work in this line will engage the attention of the society.—Lyman Brown.

### Hamilton

The Hamilton Horticultural Society has enlisted the assistance of a number of capable speakers, who have been giving interesting lectures at public meetings held by the society. On March 22nd Prof. L. Caesar, of the Ontario Agricultural College, spoke on the subject, "Insects that are injurious to Vegetables, Ornamental Shrubs and Plants." The various most common insects were described and methods of control given. On April 19th Mr. Wm. Hunt, of the Guelph College, gave a lecture on vegetable growing. Both addresses were designed especially to aid beginners in garden production.

### Notes

The Stratford Horticultural Society has issued an attractive, well illustrated booklet of twenty pages containing its annual announcement for 1918. It contains a list of options, sprays for garden use, the prize list for its flower and fall shows and other useful information.

The Guelph Horticultural Society is distributing a little pamphlet, entitled "War Gardens Will Win." It describes their vacant lot and garden competitions, foreigners' competition, bird house competition, and gives an unusually interesting and complete list of options. The society has also printed an announcement giving the rules for its second bird house competition. Other societies will find this report interesting.

The Quebec Society for the Protection of Plants held a meeting at Macdonald College, March 21st. Prof. Lochhead was re-elected president. Rev. Father Leopold, vice-president, and Prof. J. M. Swaine, secretary. A spray calendar was prepared and the provincial Minister of Agriculture will be asked to have copies distributed.

A popular speaker among horticultural societies is Mr. Wm. Hunt, of the Ontario Agricultural College, Guelph, who recently has addressed meetings in connection with the food campaign of the Department of Agriculture, at Barrie, Elora, Kitchener, Hamilton, Welland and the Whitby Military Convalescent Hospital.

Up in Northern Ontario the Haileybury Horticultural Society is conducting a splendid work. Its tenth annual flower, vegetable and fruit show is to be held this year on August 29 and 30. Its printed prize list for this show and for its garden competitions, including children's competitions, shows that it is carrying on an active campaign along several important lines.

### You Can Assist Us

Have you a good photograph or photographs of your orchard or garden suitable for reproduction in The Canadian Horticulturist. If so we will be pleased to have you submit them to us, especially if they illustrate some special phase or operation in garden or orchard practice. Any notes you may send describing the scenes shown in the photograph will also be appreciated.

Letters from our readers giving the results of their experiments or commenting on articles in The Canadian Horticulturist are always invited. They help us to make The Canadian Horticulturist more interesting and helpful and therefore your cooperation is desired. Send them to

THE EDITOR,  
THE CANADIAN HORTICULTURIST  
Peterboro, - - Ont.

### St. Thomas

The year 1918 promises to prove a record one in all departments of the work of the St. Thomas Horticultural Society. The City Council has increased the municipal cash grant from \$150 to \$300. The M.C.R.R. have again granted \$500 towards the improvement of a park in the vicinity of the station. The Society has ordered 850 shrubs and 160 trees for its beautification. At the instigation of the society, the Board of Education is establishing school gardens. About five acres in all have been donated by public-spirited citizens for the purpose.

May 10, 11 and 12 (the latter date being Tulip Sunday) are the dates set for the annual Festival of Tulips. On account of the increased entries and interest taken in this splendid event, larger quarters had to be secured this year. It will be held in the J. H. Gould, Ltd., Building, next to the post office. The St. Thomas Tulip Cup, which has been held by Tillsonburg for two years, will be keenly competed for. The members of the St. Thomas Society extend a hearty welcome to readers of The Canadian Horticulturist to visit the Flower City at this time and see it in all its grandeur.



The holding of rose exhibitions is becoming increasingly popular among Horticultural Societies. This shows the corner of an exhibition held last year by the Owen Sound Society.



# How the Y.M.C.A. Contributes to Victory



Serving coffee 100 yards from German lines near Lens.

**Y**PRES, Langemark, Festubert, Vimy Ridge, Paschendaele—how the very names thrill! They stand for deeds of the bravest of the brave—our own Canadian lads! They fight and win, not always by strength of numbers, but by unbeatable fighting spirit, or “morale”

## **Y.M.C.A.** **Red Triangle Fund**

**\$2,250,000, May 7, 8, 9**

*Canada-Wide Appeal*

Said a British Staff officer: “I have known morale to be found in a cup of hot coffee. I have seen it sustained by a man's merely writing a letter home. If you want an easy and short definition of “morale” you will find a good one in the four letters Y.M.C.A.”

The staff officer pointed to the men trooping into the big Y.M.C.A. hut and continued: “Those men are going to the front line tomorrow. In the Y.M.C.A. some of them will be playing games, others attending divine service, but each in his own way will find a strengthening of his ‘morale’ in the comradeship of his fellows under the Red Triangle. All this is a thing which is going to turn the balance in our favor.”

Through the hell of battle after battle, our brave soldiers fight. Through fire, water, mud, filth and deadly danger follows the ever-faithful Y.M.C.A. man, even if he can bring but a bucket of invigorating coffee to fagged fighters. Will you help us to supply the coffee—and to render the thousand and one similar services to soldiers everywhere?

The Y.M.C.A. needs at least \$2,250,000 to meet the tremendous demands. Be generous!

## **National Council, Young Men's Christian Association**

**Headquarters: 120 Bay Street, Toronto**

**John W. Ross, (Montreal)**

National Chairman of  
Red Triangle Fund Campaign

**G. A. Warburton, (Toronto)**

National Director of  
Red Triangle Fund Campaign

### **Bits from Soldiers Letters**

“The Hut is very well termed ‘next to home’”.

“I went home for the first time in 18 years and I had not written for 13 years. I have given up my old habits of drinking and gambling and thank God for it. Thanks to a little word caught at one of your good night services”.

“From one end the train to the other I heard nothing but good of the “Y”. Your representative did his best to supply our needs, purchasing stuff at rock bottom prices and letting the boys have it in the same way”.

“They send guides out with parties of soldiers on sight-seeing tours all over London.”

A German prisoner said; “The reason you fellows show such fight is easily understood. Your officers' canteens, Y.M.C.A.'s and padres are backing you up.”

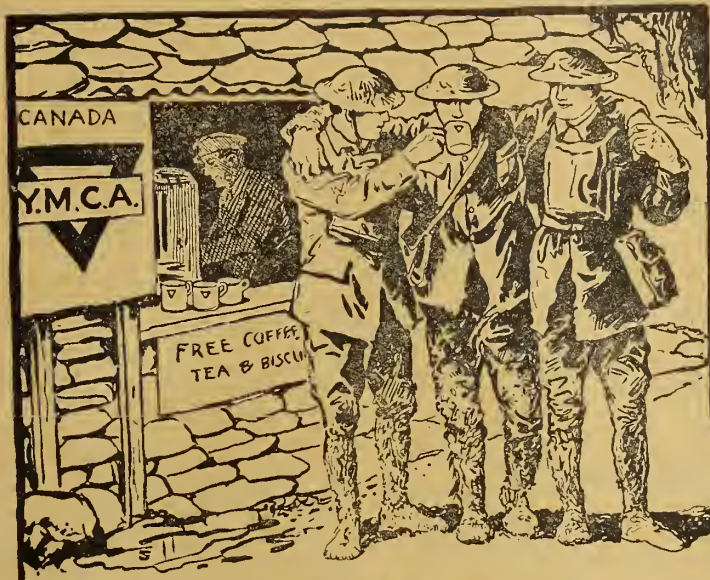
“Who pays? I don't know. But whoever they are, God Bless them. They are the fathers of thousands of boys”.

### **“Earn and Give” Campaign for Boys**

Serve your Country by your labor and make a gift to the Red Triangle Fund from your earnings! What a fine chance to do a double service! Six thousand boys are asked to give \$10 each. Of the total, \$50,000 goes to help the soldiers, the balance for boys' work. Gifts must be at least \$10, the standard unit. A boy may subscribe more than \$10 in \$10 units, but not less. A beautifully engraved certificate will be given to each subscriber. Ask your local Y.M.C.A. representative for pledge card and full information.



# "What Would We Boys Do Without the Y.M.C.A.?"



Y.M.C.A. men helping wounded soldier.

READ this soldier's letter: "Right up close was a Y.M.C.A. outfit in the side of the bank near the trench where the wounded were carried out. They, like myself, wet and suffering with the cold, the poor mutilated devils with the pangs of thirst added to those of cold and agony—to suddenly come upon a hot cup of tea, cocoa or coffee with fine cakes and bread and butter, all with a smile for the asking, without stint. My memory is that I would have paid ten dollars for the cup of coffee handed to me. If only every charity were as practical!"

## Y.M.C.A. Red Triangle Fund

\$2,250,000, May 7, 8, 9

Canada-Wide Appeal

Think of the dangers that beset the soldier in health—the temptations of camp and city, the long days and nights in billets when dread homesickness overtakes him. Everywhere he goes your soldier boy is helped by the Y.M.C.A. Cheerful huts welcome him with companionship, games, sing songs, concerts, refreshment and a word of guidance.

For this far-reaching work across two continents the Canadian Y.M.C.A. needs at least \$2,250,000. Be generous!

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Headquarters: 120 Bay Street, Toronto

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National Director of  
Red Triangle Fund Campaign

### Tributes:

Lord Northcliffe:

"I do not think the war can be fought without the Y.M.C.A."

Major-General Burstall:

"The benefit to the troops is beyond calculation."

Lt.-Colonel Mayes:

"Games have a tendency to increase fighting spirit. Any efforts on your part to expedite delivery of athletic equipment will be of national service."

Major-General Leckie:

"One cannot speak too highly of the excellent work of the Y.M.C.A. at the Front."

Harry Lauder:

"We took the responsibility of sending these boys to defend us, and we must not fail them. The Y.M.C.A. huts are the soldiers 'Home from home'."

General Alderson:

"Your work is very much appreciated by all units of the corps."

Hon. R. B. Reese, Australia:

"The greatest praise must be given to the Y. M. C. A. who succor the men even right up at the front line."

Brig. Gen. Odum:

"I want to let you know how much I was impressed with the work done by the Y.M.C.A. It was simply magnificent. All ranks are enthusiastic. I have recommended one of your officers for the Military Cross. The Y.M.C.A. has endeared itself to the soldier in France as no other institution has."



## Fruit Growers and Transportation Problems

Geo. E. McIntosh, Traffic Expert, Dominion Fruit Division, Ottawa

"**F**RUIT growing and transportation interests are inseparably bound together. There is no use in growing berries, peaches, cherries, apples or any other class of fruit commercially without an efficient system of safe and rapid distribution." This statement was made by S. Harold Powell, of the Department of Agriculture, Washington, in addressing a body of American fruit growers, and I take the privilege of repeating the statement and applying it to Canadian conditions.

In listening to the experiences of many of the prominent shippers in the Niagara Peninsula, by personal observation, and by comparative statistics, I have become educated to the fact, and I have every reason to believe that as growers and shippers of perhaps the most delicate commodity tendered to the railways and express companies, you also are convinced that while there has been a gradual evolution of transportation facilities in the past few years, making possible the distribution of fruits from the producing centres to the most distant markets, there are still many difficulties with which the fruit shipper has to contend, and especially the producer of the more tender varieties.

Too much cannot be done in an educational way along the line of improved methods and greater production, but it is dangerous, after compelling the producer to put his products on the market up to a certain standard, under penalty, to sacrifice the method of getting the fruit to the consumer in the best possible condition. I have seen some of the most beautiful berries and also specially packed peaches, delivered to the shipping platform with more or less pride by the grower, but with the rough, careless handling these baskets received in loading to the express car, it is safe to say they had depreciated fully fifty per cent. You may have reasons for complaint in some instances, but after all it is service the tender fruit growers need, and must have. It was my privilege to visit the producing sections of British Columbia, Washington and California last season, and one would think on coming back to the Niagara district and witnessing the destructive handling, that the express messengers had never had any experience or instruction in fruit handling. In the berry and cherry sections of British Columbia, the packages never leave the men's hands until placed in position in the car, even in less carload shipping. There is no sliding baskets on the floor or piling tender fruits ten, eleven and twelve baskets high and then filling the remaining space by pitching baskets on top of an already too heavily loaded car, as I have witnessed in this district. It is this above everything else that is causing heavy losses to nearly every shipper of fruit in Ontario, and he has absolutely no redress except through the rough and dangerous channel of a claim, possibly piloted through the courts. Damage in transit may occur, but damage in loading does occur.

I realize it is difficult, if not impossible for officials to know just what service is given by employees unless a responsible man is in charge. You have, however, what is known as a fruit special serving your district. This is supposed to be a special express service, and by that is meant express cars running on express schedule and charging shippers express rates. It is not too much to ask and expect that such a service be made just what it is intended to be by having the necessary official referred to.

Unfortunately, this condition, wherein it is generally known that many losses do occur, is a grievance over which the Board of Railway Commissioners have no jurisdiction, and no provision is made in the criminal code for punishing the guilty ones.

The successful transportation of fruit is a complex problem, and it is certain that the fruit industry now requires better handling and better transportation facilities than in the early stages of its development. It is becoming more and more evident that as the industry increases and the distribution of the product is extended, more careful treatment in the orchards and packing houses and further improvement in transportation service will be required if the industry is to be permanently successful. Other industries have made progress and unless the fruit industry is an exception and crippled by inferior transportation facilities, it must become one of the greatest industries in Canada.

### Purposes of Department.

The Transportation Department in connection with the Fruit Branch of the Dominion Department of Agriculture, is as yet only in the organization stage, but briefly defined the purpose will be as follows:

To create more cooperation between carrier and producer. Producers and shippers are entitled to consideration which they probably do not get, but which the railways in many cases would be perfectly willing to concede upon a proper presentation of facts.

To collect and disseminate such information as may be deemed helpful both to shipper and carrier, and through which undeveloped markets may be reached.

To study and put into practice with the cooperation of the carriers, improved methods of distribution, thereby avoiding the overloading of certain markets, while others are inadequately supplied.

To assist shippers of food and food products in getting cars and otherwise arranging for service when the occasion demands attention.

Complaints relative to transportation facilities will be carefully investigated. Where a just grievance exists, the matter will be taken up with railway representatives, and if necessary, referred to the Board of Railway Commissioners for adjustment.

Assistance will be given shippers in every way possible, in securing equipment, and bulletins will be issued from time to time acquainting shippers with existing privileges or tariff changes.

Finally, to unite our efforts with growers, shippers, carriers and consumers in one great effort to reduce to a minimum the danger of waste of foodstuffs from deterioration or otherwise, and get the fruit and vegetable growers' product to the markets in the best possible condition.

These and the many other problems arising in connection with fruit transportation will receive attention, and growers and shippers are requested to make known any grievances that may exist.

## Annapolis Valley Notes

Eunice Buchanan, Berwick, N. S.

Up to the time of writing (April 17) it has been almost impossible to work the soil. The weather is pleasant, sunny days with hard frosty nights, while the snow is still deep in the woods. There is little to record, with the exception of pruning, split-log dragging

## Circulate The Canadian Horticulturist

There are thousands of people in Canada who would like to know that there is such a paper in Canada as The Canadian Horticulturist in order that they might benefit from the many helpful, interesting articles that it publishes each month. Did you ever stop to think that The Canadian Horticulturist is probably circulated more cheaply, considering the high standing of its contributors, the quality of its illustrations and the wealth of its reading matter, than any other commercial publication in Canada. Our ability to give this service depends upon the size of our circulation. The larger the circulation the better the service we can give.

You can help us. Tell those you think will be interested about The Canadian Horticulturist. Show them your own copy and suggest that they subscribe themselves. Or send us the names of possible subscribers with their addresses and we will send them sample copies and write them direct. Remember, our low subscription rates: 50 cts. a year, 3 years \$1.00, or 6 months for 25 cents places The Canadian Horticulturist within the reach of all.

Liberal commissions and other rewards are offered to those who secure lists of new subscriptions. Local subscription agents are wanted. Write for particulars to

THE CANADIAN HORTICULTURIST  
Peterboro, Ont.

the roads, and work at the wood pile. Barrel manufacturers are not anxious to sell their stock, as they are looking for higher prices. Some farmers are working by daylight saving time, while others are not.

This year a number of orchardists intend to use the Thomson-Buchanan spray. The formula is as follows:

1st Spray (when leaves are the size of a 5 cent piece): 4 lbs. bluestone, 30 lbs. stone lime, 3 lbs. paste arsenate of lead, 100 gals. water.

2nd Spray (just as blossoms appear): 4 lbs. bluestone, 30 lbs. stone lime, 3 lbs. paste arsenate of lead, 100 gals. water.

3rd Spray (when seven-eighths of blossoms have fallen): one or two lbs. bluestone, 30 lbs. stone lime, 3 lbs. (three) paste arsenate of lead, 100 gals. of water.

4th Spray (10 days after 3rd spray, if thought necessary): Same formula as for 2nd spray, except as regards stone lime, of which but 10 lbs. should be used to 100 gals. of water. If hydrated lime is used it will require twice the quantity of stone lime necessary to get the same amount of lime in the 100 gals. of water.

A newspaper despatch from Guelph states that the Vacant Lot Committee of the Horticultural Society recently suggested to the lawn bowlers and golf players of the city that they might forego their favorite summer pastime this summer and bend their energies toward greater production, or else agree to assist farmers to do so. The despatch states that the suggestion was not appreciated by those to whom it was sent.



A. E. AMES & CO.  
Toronto Montreal  
New York

## IT WOULD BE IMPOSSIBLE

to indicate a more suitable security to serve as a nucleus around which to build up a substantial investment than

## CANADA'S VICTORY BONDS

Your orders would be appreciated.

**A. E. AMES & CO.**

ESTABLISHED 1889

Members Toronto Stock Exchange.

## Niagara District Notes

By F. G. H. Pattison, Winona, Ont.

THE past month has in many respects been favorable to the fruitgrowers. There has been but little severe weather and late frosts appear to have done no damage. The spring is earlier than usual and the ground is working up exceptionally well. Fruitgrowers, generally speaking, are well up with their pruning and other winter work. The ground having dried off earlier than usual, a good deal of spraying with lime-sulphur has been done, especially on peach trees and early plums.

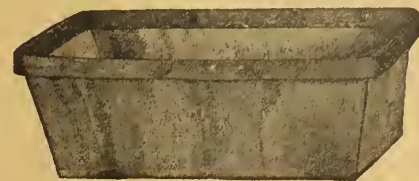
The amount of injury done by the late abnormally severe winter is by no means yet certain, but there appears to be a fairly good prospect for a crop of peaches, although in some localities a good deal of damage has been done to the buds of the more tender varieties. Japanese plums have suffered badly, and in some places, Governor Wood, Elkhorn and Black Tartarian sweet cherries have been severely injured, but Yellow Spanish and Windsor seem to have escaped. Niagara grapes, too, have been badly winter killed in some localities, but Concords seem to be all right. During the last week of March a special meeting of fruitgrowers was held in the public hall at Winona, at which there was a large attendance. C. C. Pettit, of Winona, was in the chair. The following resolutions were passed:

1. Approving of the scheme of President Kelly, of the Hamilton Board of Trade, as to the manufacturers releasing skilled farm labor from the factories for work on fruit and grain farms.

2. Strongly disapproving of the proposed Daylight Saving Bill, on the grounds that, owing to the heavy dews in the morning dur-

## Improved Peerless Plant Boxes

With Round Cornered Rims



The outside rim or band is unscored at the corners thus greatly strengthening the box and eliminating a very large percentage of the breakage hitherto experienced. The Round Corners do not interfere with the arrangement of plants in the box.

OUR MOTTO:

**"Every Box a Trade Winner"**

Order early from

**Canada Wood Products Co.**  
St. Thomas, Ont.

## A Garden of Flowers & Vegetables

Every home should assist in food production this year by planting a vegetable garden. There is no reason, however, why it should not be made beautiful and attractive by the addition of some flowers.

Here are two splendid collections of seeds, one of vegetables just suited for the home garden, and the other of sweet peas—the sweetest flower in the garden.

### HOME COLLECTION OF VEGETABLE SEEDS for \$1.00

Consisting of one packet each of the following:

Beans—Sutton's Masterpiece  
Beans—Ferguson's Sure Crop.  
Beets—Ferguson's Imp. Dark.  
Carrot—Ferguson's Early Market Red.  
Corn—Ferguson's Early Malcolm.  
Corn—Golden Bantam.  
Cucumber—Davis' Perfect.  
Lettuce—Ferguson's Peerless.  
Lettuce—May King.

Onion—Ferguson's Red Globe.  
Parsley—Ferguson's Perfection.  
Peas—Gradus.  
Radish—Long White Icicle.  
Radish—Scarlet Globe.  
Spinach—New Zealand.  
Swiss Chard—Giant Luculus.  
Tomato—Ferguson's O. K.  
Turnips—Early Stone.

### 1918 EXPOSITION COLLECTION OF SWEET PEAS

Fourteen of the finest giant Exhibition sorts in one grand collection, \$1.25, postpaid

Primrose Spencer.—Fine deep cream.  
Blanche Ferry Extra Select.—Red and white.  
Rosabella.—Best rose colored.  
Edward Cowdy.—Best orange-scarlet.  
Illuminator.—Beautiful salmon orange.  
King Edward Spencer.—Best red.  
King White.—Best white.  
Robert Sydenham.—Best salmon orange.

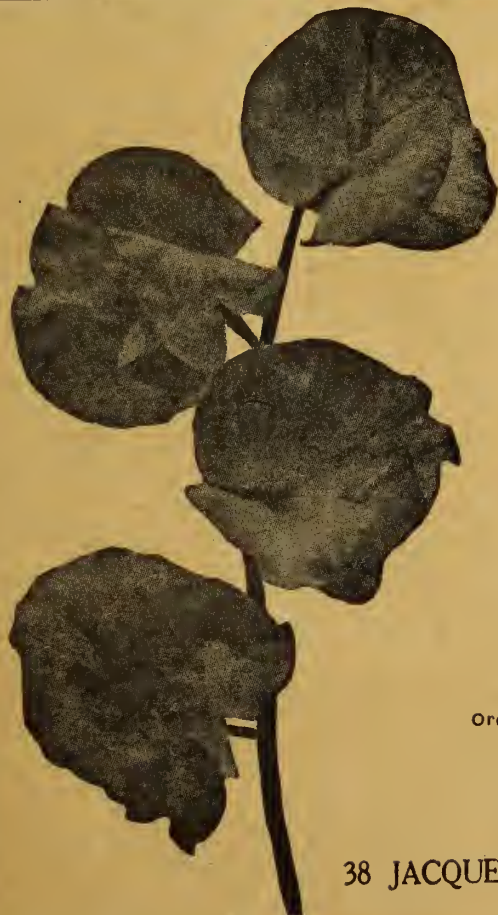
Margaret Atlee.—Giant rosy pink on cream.  
New Mirlam Beaver.—1916 novelty and best light cream pink.  
King Manoel.—Largest deep maroon.  
R. F. Felton.—Best lavender.  
Royal Purple.—Best purple.  
Wedgewood.—Best blue.

Order your collection now. Both collections are sent prepaid anywhere in Canada.  
Our 1918 Spring Catalogue sent on request.

## DUPUY & FERGUSON

38 JACQUES CARTIER SQUARE

MONTREAL, QUE.





**GRAY CAUCASIANS**

Early breeders, great honey gatherers, cap beautifully white, great comb builders, very prolific, gentle, hardy, good winterers. Untested \$1.25, select untested \$1.50, tested \$1.75, select tested \$2.25.

**H. W. FULMER**

POINT PLEASANT

PA.

**FOR SALE**

A few colonies of Italians with tested queen, \$12.00 per colony; with choice breeding queen, \$17.00.

Untested Queens, after June 25th, \$1.00 each.

Breeding Queens, \$5.00.

Tested breeders, \$10.00.

**JOHN A. McKINNON**

Box 79, : ST. EUGENE, Ontario

Canadian Queen Breeder.

**Three Banded and Golden Italian Queens**

Untested—\$1.00 each; 6 for \$5.00; 12 for \$9.00.

Selected untested—1 for \$1.25; 6 for \$7.00; 12 for \$14.00.

Send for Price List. Cash with Order.

**W. R. STIRLING**

Queen Breeder

RIDGETOWN, ONT.

ing summer and fall, the putting forward of the clock one hour would tend to lessen the production of both farmers and fruit growers, and cause trouble with their hired help.

3. Agreeing to join with Grimsby and St. Catharines in sending a strong deputation to Ottawa from the Niagara Peninsula Fruitgrowers' Association to oppose the proposed prohibition of the manufacture and sale of native wines.

A report from Toronto says that one of the anomalies of the wholesale fruit and vegetable market there is the good demand that exists for all imported lines, while those of home origin are practically neglected. The reason given for this is that Canadian people have at present more money than they ever had before, and so inferior or common grades of fruits and vegetables possess little attraction for them. In consequence of this, the loss of wholesalers in Toronto in Canadian onions, carrots, and the cheaper grades of apples is certain to be heavy. One firm will lose a small fortune in apples alone.

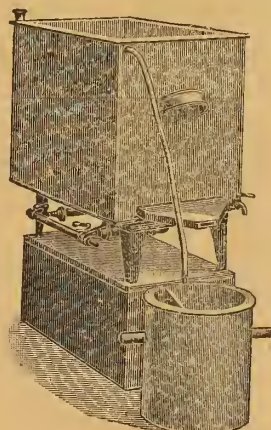
**BEE SUPPLIES**

OF EVERY DESCRIPTION

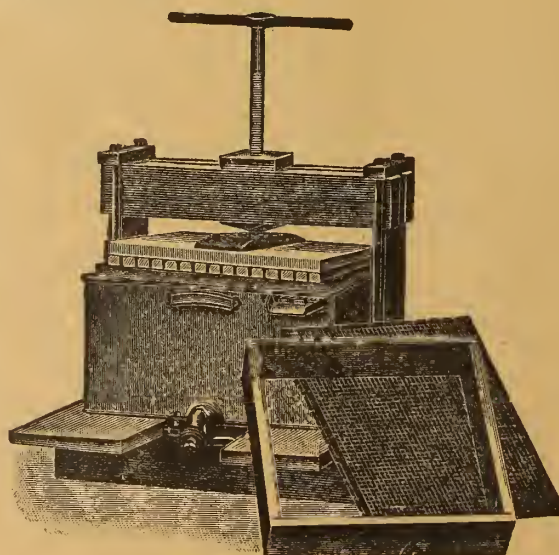
Root goods made in Canada. Beeswax made into foundation. The highest price paid for beeswax. Bees in combless packages. Get our Canadian price list.

**The Root Canadian House**

73 JARVIS ST., TORONTO, ONT.

**SAVES HONEY SAVES WAX SAVES MONEY**

The Armstrong Cappings Melter.



The Sibbald Wax Press.

Two machines that every up-to-date beekeeper should possess. Beeswax wanted for cash or in exchange, or we will make it into Comb Foundation by Weed Patent Process for you. Early cash order discounts and prompt service NOW.

**The Ham & Nott Company, Limited**  
Brantford - - - Ont.

At the annual meeting of the Dominion Canners, held the last week of March at the head office in Hamilton, President Nairn made the following statement: "Our stocks of canned goods on hand are unusually light, and we will probably go into next season with little or nothing in the shape of canned goods." The company is already making contracts with the growers, with the idea of securing an adequate supply of produce. It realizes that a full pack is urgently needed. The American market is pretty well cleaned up, while in Canada there may be some stocks in retailers' hands, but the original holders are practically without stocks, and the supply in all hands is no more than sufficient to carry over till the new pack is available. The assurance that

**Fruit Notes From Montreal**

E. H. Wartman, Dominion Fruit Inspector.

OUR strawberry season, in car lots, commenced on March 27th, two days earlier than last year. From Tennessee, only five cars have arrived so far. After the first four cars, there was quite a space elapsed, up to April 5th, when a car arrived from Alabama, the first I ever knew to arrive from this State. This car has been the talk of our city dealers ever since. It arrived after 15 days in transit. If this car had been auctioned on track on arrival, without being seen or inspected, I would imagine one cent per quart would have been the highest bid. But to the surprise of all, when opened they were largely in perfect condition, and quite a percentage of the car was sold at 45c per quart box in a wholesale way, 10 to 20 crates, 24 quarts to crate. The market was bare, and from the fact that its arrival was expected every day, it kept other dealers from dropping in a car that would clash with this one. A few crates were still on hand three days after arrival, making 18 days from the vines, selling then up to 20c a quart, making the most wonderful net profit sale on record at this port. I am persuaded the long keeping of this lot was due, first, to the kind of berry, and 2nd, to the even temperature it was kept at, which was exactly right. The

**PRACTICAL QUEEN REARING**

is the title of the new bee book, cloth bound, 110 pages, finely illustrated, which has just been written by Mr. Frank C. Pellett, former State Apiarist of Iowa and well known bee-keeping writer.

For many years there has been a demand for a book which would give in concise form the many different methods of queen rearing, as the Doolittle, Pratt, Alley, Miller, Dines and others with variations as practised by the large queen breeders.

You have this in this new bee book.

Send for your copy now and learn for yourself how to rear queens from your best colonies to advantage. Variations of plans may be of great value also to queen breeders.

Price postpaid, \$1.00, or with the American Bee Journal, one year only, \$1.75.

(Canadian postage 15 cents extra.)

**AMERICAN BEE JOURNAL**  
HAMILTON, ILLINOIS



## Annual Festival of Tulips

May 10-11-12, 1918

Visit the Flower City of Ontario on these dates, and see the finest collection of early Tulips in Canada. Spring flower display in the J. H. Gould building, May 10th and 11th. Tulip Sunday, May 12th.

For further information write

### St. Thomas Horticultural Society

F. E. BENNETT,  
President

R. W. JOHNSON  
Sec.-Treas.



#### NORTH CAROLINA BRED ITALIAN QUEENS

of Dr. C. C. Miller strain of pure three band Italian bees. Gentle and great honey gatherers. Ready May 1st.

Untested, \$1.00 each; \$10.00 per doz.  
Tested, \$1.50 ea.; Selected Tested, \$2.00 ea.  
Safe arrival and satisfaction guaranteed.

L. PARKER,  
R.F.D. No. 2, Benson, N.C.

#### MOTT'S NORTHERN BRED ITALIAN QUEENS

have proved for the last 11 years to be the Canadian friends to be the best of E.F.B. resisters. Hardy, hustlers and gentle.

Sel. tested, \$1.50; Unt., \$1.00; 6, \$5.00;  
12, \$9.00.

Plans "How to Introduce Queens and Increase," 25c. Lists free.

E. E. MOTT - Glenwood, Mich.

### Standards for Judging Vegetables

The following standards for judging vegetables were prepared by a special committee of the Manitoba Horticultural Association composed of W. T. Macoun, Dominion Horticulturist, Ottawa; S. R. Henderson, and Prof. F. W. Broderick, Winnipeg, and were adopted at the recent annual convention of the association, held in Winnipeg, for one year, when amendments may be made.

#### Asparagus.

Shoots should be thick, of medium length (8" to 9") and uniform in thickness, tender, and free from rust and insect pests. Long shoots are liable to be woody and tough.

#### Beans.

Broad Beans: Straight, broad, well-formed pods filled with large tender beans. Free from disease.

String Beans: Pods should be long, straight, moderately broad, tender, and free from disease. Pods should be uniform. Color according to variety.

#### Beets.

Long: Should be medium in size, smooth and free from side roots, gradually tapering from crown to tip, and firm in texture. Cross-section cuttings should show fine dark red, tender flesh, free from white lines. Top small and compact. Roots should be uniform.

Round: Medium in size, firm, with smooth round shape gradually tapering to a fine terminal root. Flesh should be tender, firm, fine, and of a dark red color. Roots should be uniform.

#### Cabbage.

Early: Generally round or heart shaped. The head should have fair size, be heavy, firm, hard, and free from insect injury or disease.

Late: Heads round or slightly flattened in shape, with a dense formation of dark green outer leaves, and inside leaves of a cream color. Specimens should be heavy and have firm texture.

Red: Slightly conical or round in shape. Dark red in color. Texture firm and solid, with good weight.

### Crop Feeding and Canadian Harvests

YOU are starting off the young crops. Their growth and yield depend upon how well you have prepared the soil and how much suitable plant-food the crops have at their disposal.

Fertilizing paid in tests made on Dominion Experimental Farms in 1915, as follows:

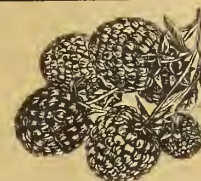
Treatment of Potatoes per acre	Yield bus. per Acre
No added plantfood	75.66
Manure 15 tons plus 583½ lbs. high grade complete fertilizer	200.33
838 lbs. of fertilizer containing Nitrogen and Phosphoric Acid	140.75
Manure 15 tons only	131.61
Manure 7½ tons only	94.36

Write for our publications on greater crop production

### Soil and Crop Improvement Bureau of the Canadian Fertilizer Association

1111 Temple Bldg. Toronto

10



#### SMALL FRUITS

Raspberries, Gooseberries, Red Currants, Black Currants, Strawberries, Rhubarb Roots, etc., etc.

WM. FLEMING  
NURSERYMAN  
Owen Sound, Ontario

### SKINNER SYSTEM OF IRRIGATION

Control complete. Prevents drought losses. Reduces labor bills. Increases profit. Special Portable Line for \$15.75. Send for new Bulletin.

The Skinner Irrigation Co.  
217 Water Street Troy, Ohio.

## Don't be too late—

The time for getting your supplies is NOW.

Freight deliveries were never so slow—so we repeat: Don't delay ordering.

We manufacture all kinds of Beekeepers' Supplies.

Hives—frames—tinned wire—DADANT'S and Canadian foundation—smokers—feeders—extractors, etc.

**THE TILLSON COMPANY LIMITED**  
TILLSONBURG, ONTARIO  
"Everything for the Bees"



**The Fruit & Produce Market**

The Commission firms undertook with consignments of fruit and general produce. They will be pleased to have you write them for information, shipping stamps, etc., if you have fruit or vegetables for sale.

**STRONACH & SONS**

33 Church St., Toronto, Ont.

Wholesale Fruit, Produce and Commission Merchants.

**H. J. ASH**

44-46 Church St. - Toronto, Ont.  
CONSIGNMENTS OF FRUIT & VEGETABLES SOLICITED

We give personal, consistent and reliable attention to every consignment. Shipping stamps furnished on request.

**DAWSON-ELLIOTT Co.**

32 West Market St., Toronto, Ont.

Wholesale Fruit and Produce. Consignments Solicited.

**HERBERT PETERS**

88 Front St. E., Toronto, Ont.

Wholesale Fruit and Produce

See advertisement on page x.

**Savoy:** Round and slightly flattened. Leaves close and compact, of a dark green color with a fine curl—good weight.

**Carrots.**

**Long:** Roots should be long, straight and smooth, without any green at the crown; have a small compact top, be free from side roots, and gradually taper from crown to tip. Texture, tender and crisp. Heart, small with a large outer ring. Roots should be uniform.

**Medium:** Medium length, straight, free from side roots and gradually tapering to a blunt tip. Skin smooth. Cross-sections should show a small core and a large outer ring. Flesh should be tender and have a rich flavor. Roots should be uniform.

**Cauliflower.**

Head, large in size with a dense formation of flower, pure white in color and without small leaves in the head. Shape, round horizontally, with a nice, even, curving crown. Cauliflower should be exhibited with a few of the lower leaves attached.

**Citron.**

Large, well-rounded, heavy specimens, finely mottled and well-colored throughout.

**Celery.**

Bunch, composed of several long, well-bleached stems of medium diameter, free from rust and rot, with a crisp texture, and rich nutty flavor. Leaves, straight and even. Heart large.

**Corn.**

**Sweet:** Cobs should have fair size and be well developed, with straight, even rows, well filled out at base and tassel end. The kernels should be tender, juicy and sweet. Ears should be uniform.

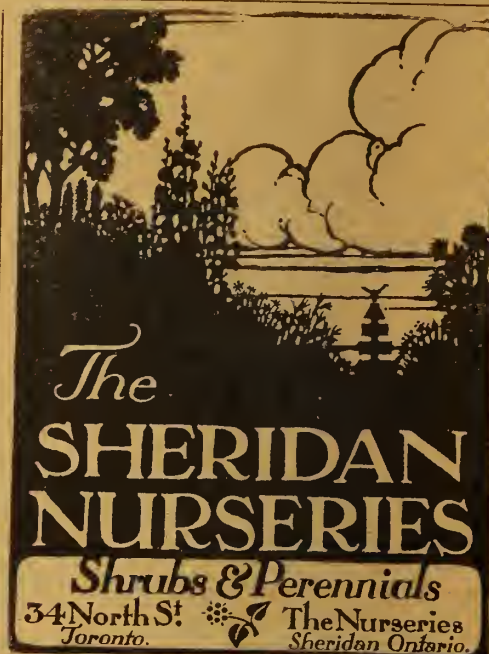
**Cucumbers.**

**Indoor:** Should be long, smooth, with size well carried out towards the ends. Dark green in color, heavy.

**Outdoor:** Specimens should be smooth in form, straight, of medium length, with thickness carried well out towards the ends; of a dark green color and heavy weight. Specimens should be uniform.

**Lettuce.**

**Cabbage:** Heads should be large, well-rounded, compact, composed of crisp, sweet



*The*  
**SHERIDAN NURSERIES**  
*Shrubs & Perennials*  
34 North St. Toronto. The Nurseries Sheridan Ontario.

# HONEY

# CONTAINERS

We have prepared a large stock of all sizes and therefore will be able to give

**PROMPT SHIPMENT**

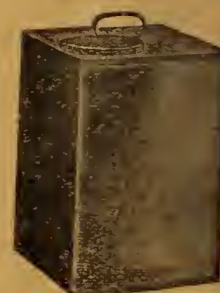
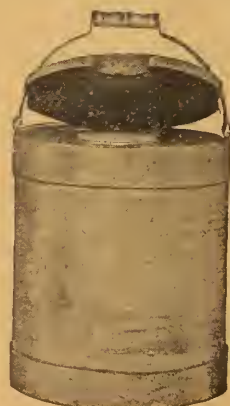
In order to secure delivery and as present conditions make it impossible to guarantee prices we suggest you place your ORDER NOW.

Our Illustrated Circular and Price List has been issued. Did you receive your copy?

**MACDONALD MFG. CO., Limited**

Spadina Ave. and Richmond St.

**TORONTO - - - CANADA**





leaves, free from any discoloration.

**Cos:** Conical in shape with straight, upright growing leaves, well-bleached and crisp, and with a firm heart.

#### Onions.

**Large:** Shape, globular or flat, according to variety; globular shape preferred. Should be smooth and even in form, of good weight, and have a small, well-ripened neck, with solid, firm texture, especially at the base of the neck.

**Pickling:** Should range from  $\frac{1}{2}$  inch to  $\frac{3}{4}$  inch in diameter, be uniform in size and shape, clean, firm and white in color. Specimens should be uniform.

#### Parsley.

Head, large and bushy, with numerous, finely curled, dark green leaves, which should be crisp and free from discoloration of any kind.

#### Parsnip.

Roots should be of medium length, broad at top with a nicely hollowed crown, gradually tapering from crown to tip, smooth and straight, skin free from rust, firm in texture, and have a small core.

#### Peas.

Pods long and straight, dark green in color and well-filled with large, sweet-flavored, tender peas. Samples should be uniform in size and color, and not over-ripe.

#### Potatoes.

Specimens should have uniformity in size, with smooth, even shape, firm, solid flesh, fine and white in color, and be clean, and free from disease. Potatoes with shallow eyes are preferred to those with deep eyes.

#### Pumpkin.

Round or oblong in shape, symmetrical, large, thin-skinned, closely ribbed, firm in texture and heavy; with deep yellow or creamy yellow color, according to variety.

#### Radish.

Summer and Winter: Medium size; smooth, even form; free from insect damage and side roots; firm texture and mild flavor. Cross-sections should show solid, fine, white flesh. Specimens should be uniform.

#### Rhubarb.

Stalks, medium in diameter, long, straight and tender; with uniform color and mildly acid flavor.

(Continued on page 138.)



### Fancy Fruit

grows only in well-tilled orchards. Intensive orchard tillage pays. Work in close to the trees with an

#### "Acme" Orchard Harrow

Cuts, crushes, mulches, levels, and compacts the soil—all in one operation. Keeps the orchard clean as a new pin. Extension and regular styles—a size to suit you. Our new free book, *The "Acme" Way to Crops That Pay*, is ready. Send today for your copy.

Bateman, Wilkinson Co., Limited  
602 Symington Ave. Toronto, Ont.

No 23 61-2 ft. Wide



## Secure Your Supply of Insecticides NOW

*To destroy those POTATO BUGS and WORMS which reduce crop Production*

**Arsenite of Lime** will have a tremendous sale this season owing to the high price of Paris Green. Spray with **ARSENITE OF LIME** the King of Bug Killers.

**SAVE THE POTATO CROP.** We said this last year—we say it again.

This is a great year for thrift and service. We must feed not only our own people, but also millions in Europe. The frightful waste of potatoes is a national reproach. Help stop this unpardonable extravagance. The potatoes we waste would feed Belgium. So kill the potato bugs. The Canadian Government urges spraying as a home duty. Canada's potatoes are appetizing, wholesome and nourishing, and the Canadian farmer who practices thrift places himself in the ranks of those who best serve their country. You can show your thrift in no more convincing way than by combating the national tendency to squander this country's wonderful potato crop—so **SPRAY, SPRAY, SPRAY**, with **ARSENITE OF LIME**. Beware of substitutes.

7857. Potato Bug Poison, Arsenite of Lime, Small	\$0.25
7858. " " " " " " Large	.45
7859. " " " " " " 5 Lbs.	2.25
7860. " " " " " " 10 Lbs.	4.25

Other spraying preparations of great value for the destruction of bugs and worms. Write for complete list and pamphlet on insects and insecticides free.

7738. Aphis Punk, for fumigating—Per pkg., 12 sheets	1.00
7739. Arsenite of Lead, Grasselli—Per lb.	.45
7741. " " " " " 5 lbs.	2.00
7742. " " " " " 10 lbs.	3.50
7743. " " " Sterlingworth—Per lb.	.45
7744. Black Leaf "40" Sulphate of Nicotine—Per 1 oz.	.35
7746. " " " " " " 1/2 lb.	1.50
7748. " " " " " " 2 lbs.	5.25
7788. Hellebore, for Rose Bugs, etc.—1/4 lb.	.25
7789. " " " " " 1 lb.	.75
7825. Nikoteen—1 1/4 oz.	.60
7826. " 1 pt.	1.75
7827. Paris Green—1/2 lb.	.40
7828. " 1 lb.	.70
7829. " 5 lbs.	3.40
7830. " Bulk, per 10 lbs.	6.75
7755. Bordeaux Paste Mixture, Grasselli—1 lb.	.50
7756. " " " 2 lbs.	.90
7757. " " " 5 lbs.	1.90
7760. Bug Death, Potato Bug Destroyer—1 lb.	.20
7761. " " " " 3 lbs.	.45
7762. " " " " 5 lbs.	.65
7763. " " " " 12 1/2 lbs.	1.25
7764. " " " " Bulk, per 100 lbs.	8.70
7842. Hammond's Slug Shot—1 lb.	.20
7843. " " " 5 lbs.	.90
7844. " " " 100 lbs.	14.50
7879. " Whale Oil and Tobacco Soap	.30
7881. Radix Worm Eradicator—Lb.	.85
7882. IXL Worm Composition	.35

If required by mail in Ontario and Quebec, add 15c per pound, 20c for two pounds, and 5c for each additional pound.

*When buying from dealers insist on Rennie's Seeds*

**THE WILLIAM RENNIE COMPANY LIMITED.**  
**KING & MARKET STS TORONTO**  
ALSO AT MONTREAL WINNIPEG VANCOUVER





## Getting the Most Out of your Team

Make their work easier. They are faithful friends and deserve the best treatment.

### MICA AXLE GREASE

"Use half as much as any other"

Lightens the load. The mica forms a smooth, hard surface on the spindles and the grease keeps it there. Mica Grease gives the effect of roller bearings and reduces unnecessary strain on your team.

### EUREKA HARNESS OIL

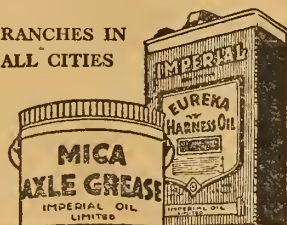
"Lengthens leather life"

Is the best harness life insurance on the market. It overcomes the worst enemies of leather — water and dirt. Leaves your harness soft, pliable and waterproof. A pure mineral oil free from acids and cannot injure the leather.

Sold in standard sized packages by live dealers everywhere.

IMPERIAL OIL LIMITED

BRANCHES IN ALL CITIES



We have a large stock of all sizes

## FLOWER POTS

FERN OR BULB PANS

3 AZALEA POTS and Rimless Pans

Orders Filled Promptly.

Send for Prices

THE FOSTER POTTERY CO., Ltd.  
HAMILTON, ONT.



## Chicks in Brooders

More difference of opinion exists as to the value of brooding systems than in any other part of poultry rearing, which shows that no system is ideal for all conditions, but that success depends largely on individual handling and care. Many failures in brooding are due to weak chicks, which may be traced to faulty incubation or weakness in breeding stock. Successful chick raising depends primarily upon having healthy, vigorous breeding stock.

### Avoid Lack of Ventilation.

Some of the most important faults in the management of brooders are overcrowding and lack of ventilation, while chickens fail to get sufficient exercise. The brooder should supply the proper temperature, be readily adapted to change in weather conditions, be easy to clean and well ventilated. The capacity should not be overestimated. One-half to two-thirds of the number of chickens commonly advised will do much better than a larger number. Brooders and hovers should have from one-half to two inches of sand, dry dirt, cut clover, or chaff spread over the floor, and in case they are kept in the brooder house, over the floor of this also. The hovers should be cleaned frequently, as cleanliness is essential in raising chickens successfully.

The best temperature at which to keep a brooder or hover depends on the position of the thermometer, the style of the hover, the age of the chickens, and the weather conditions. Aim to keep the chickens comfortable. As the operator learns by the action of the chickens the amount of heat they require, he can discard the thermometer if he desires. When too cold they will crowd together and try to get nearer the heat. If it is found in the morning that the droppings are well scattered under the hover it is an indication that the chickens have had enough heat. If the chickens are comfortable at night they will be spread out under the hover with the heads of some protruding from under the hover cloth. Too much heat will cause them to pant and gasp and sit around with their mouths open.

### Temperatures for Brooding.

It is impossible to state for each case at what temperature the brooders should be kept to raise young chickens; however, it will run from 90 up to 100 degrees F. in some cases, as some broods of chickens seem to require more heat than others, an average being 93 to 95 degrees F. for the first week or 10 days, when the temperature is gradually reduced to 85 degrees for the following 10 days, and then lowered to 70 or 75 degrees F. for as long as the chickens need heat. As the chickens grow larger and need less heat, the lamps may be used only at night, and later on only on cold nights. Care should be taken to prevent chilling or overheating the chickens, which weakens them and may result in bowel trouble.

When chickens are first put into the brooder they should be confined under or around the hover by placing a board or wire frame a few inches outside (this would not apply to the small outdoor colony brooders). The fence or guard should be moved gradually farther away from the hover and discarded entirely when the chickens are three or four days old, or when they have learned to return to the source of heat. Young chickens should be closely watched to see that they do not huddle together or get chilled. They should be allowed to run on the ground whenever the weather is favorable, as they do much better than when kept continuously on cement or board floors. Weak chickens should usually be killed as soon as noticed, as they rarely make good stock, while they may become carriers of disease. Brooders should be disinfected at least once a year, and more frequently if the chickens brooded in them have had any disease.

## Care of Hen With Chicks

When the chickens begin to hatch, the setting hen should not be disturbed unless she is restless and steps on or picks the chickens. In this case the chickens should be removed as soon as dry and placed in a basket lined with flannel or some other warm material and the basket placed near a fire or in some warm place until all the eggs are

## BISSELL Double Action Harrows will thoroughly cultivate



and pulverize any soil. One Harrow is Out Throw; the other is In Throw. They are simply constructed, rigid and durable. The Gangs are flexible and the Disk Plates are so designed that they "hang" right into the soil. Bissell Harrows are built in sizes and weights suitable for horse or tractor use. Write Dept. N, for free catalogue. 98

T. E. BISSELL CO., LTD., Elora, Ont.

Mr. S. J. T. Bush, who was Superintendent of Farm Machinery for the State of New York, during 1917, and who has been President of the Western New York Horticultural Society for several years, in a letter dated Dec. 20th, 1917, states:—

Dear Sirs:—

Replying to your enquiry, beg to say I purchased a Bissell Double Action 8-foot Harrow from you last summer to go with my Case 9-18 Tractor, and I am glad to say that I am well satisfied with the harrow.

Owing to the rainy season we were unable to keep our orchards cultivated as we usually do, with the result that the weeds got such a start by the time it dried sufficiently to work the land, that it was impossible to do anything with it, except with a tractor and the work we were able to do with the tractor and Harrow was almost beyond belief.

Four times over these orchards, with the weeds three feet high when we began work, put them in as fine condition as if conditions had been normal.

Yours very truly,  
(Signed) S. J. T. BUSH.



hatched. Another plan is to remove the eggs from the restless hen and place them under a more quiet one whose eggs are hatching at the same time.

When the eggs hatch unevenly, as is frequently the case, those which are slow in hatching may be placed under another hen. Hens often are restless after a part of the chickens are out, which allows the remaining eggs to become cool at the very time when steady heat is necessary to successful and strong hatches. Remove the egg shells and any eggs which have not hatched as soon as hatching is over.

The mother hen should be fed as soon as possible after the eggs are hatched, as feeding tends to keep her quiet. Hens that are not so fed will sometimes leave their nests. In some cases it is best that the hen remain on the nest and brood the chickens for at least 24 hours after the hatching is over.

It is important at this stage to guard against lice and mites. Before the hen and her chickens are removed to a brooding coop she should be dusted with a good insect powder. This should be repeated every two weeks, or as often as is necessary, until the chickens are weaned. If lice become thick on the chickens, or if they are troubled with "head lice," a very little grease such as lard or vaseline may be applied with the finger on the head, neck, under the wings, and around the vent. Great care is necessary, however, not to get too much grease on the chickens, as it will stop their growth and in some cases may prove fatal.

## Poultry Notes

The soft-shelled egg is due to either over-fat or lack of lime in the ration; sometimes both.

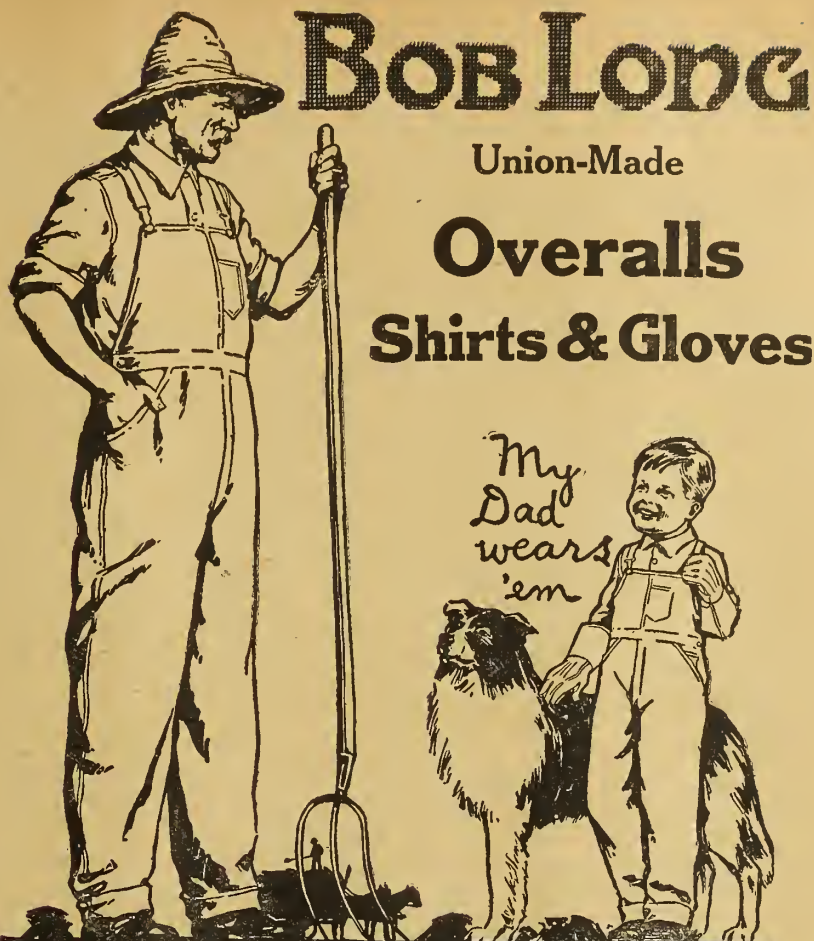
Where the attention of the male becomes a perfect harassment, the nervous derangement may decrease the egg product.

The first few eggs of the brown-egg layer are rich in color, but as laying continues they become more pale. This is due to a certain pigment from which the coloring comes, and which in its first strength is of good color.

The shortage of labor and the tremendous increase in feed prices make it imperative that only the very best producers should be kept. Stock that would return a substantial profit in pre-war times, when feed was cheap, will now, under the changed conditions, show a loss. This probably applies more strongly to poultry than to any other class of live stock, as the securing of suitable feed is becoming more and more difficult.

Mercurial ointment is effective in exterminating head lice. This material is also sold as blue ointment or "blue butter," but mercurial ointment, which contains 50% of metallic mercury, is cheaper at present prices, on the basis of mercury contained, than the other form. Since it is stiff and difficult to apply by itself, it is best mixed with vaseline, lanolin or a similar substance in the proportion of one part of the ointment to two of the ingredient used, and is then fully as effective. The material is applied by taking a lump of it about the size of a pea and rubbing it thoroughly at the base of the feathers about the head. Head lice rest mainly upon the feathers, usually at the point where the barbs begin.

Farmers' Bulletin No. 887, dealing with Raspberry Culture, and Farmers' Bulletin No. 901, dealing with Everbearing Strawberries, both by Geo. M. Darrow, of the United by Chas. S. Crandall. Write to Urbana, Ill.



# Bob Long

Union-Made

## Overalls

## Shirts & Gloves

*Bob Long says:*

"My overalls and shirts are the best made, because— they are roomy and comfortable. I designed them with the idea that you might want to stretch your arms and legs occasionally."

Insist on "Bob Long" brand. Ask your dealer for Big 11—the big grey overalls—the cloth with the test.

**R. G. LONG & CO., LIMITED**

TORONTO • CANADA

97

## Don't Buy A Sprayer

### THAT HAS ANY KIND OF PACKING

Packing Blows Out Wears Out Dries Out

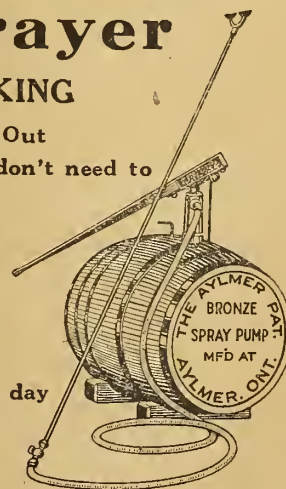
Why pay good money for all that trouble when you don't need to

The *Aylmer* Spray Pump  
Has No Packing

Designed Right Made Right Stays Right!

Read our New Booklet "Facts in Brass" Write to day

**The Aylmer Pump & Scale Co., Limited**  
AYLMER, ONTARIO





# Kill Aphis

**Before Aphis  
Kills Your Profits**

This tiny, sap-sucking insect, scarcely larger than a pin-head, is destroying apple profits all over the country. Feeding with its sharp, mosquito-like bill, it causes dwarfed, deformed, unmarketable fruit. Curls foliage. Weakens trees. Spray with



## Black Leaf 40

40% NICOTINE

and control Aphis, Red Bug, Leaf Hopper and other soft-bodied, sucking insects. Aphis is making its appearance in many sections for the first time. Regarded by many growers as the most destructive apple insect. One aphid produces thousands in a few weeks. Spray with Black Leaf 40 and save your profits. Can be used with lime-sulphur, arsenate of lead, bordeaux and other sprays as recommended, or may be used separately, if desired. Mixes perfectly with water. Costs only about 1c per gallon diluted for the trees. Recommended by agricultural colleges and experiment stations. Send for

### Free Spray Chart and Leaflets

showing when and how to spray and how to protect fruit trees, vines and vegetables from these profit-killing insect pests.

**The Kentucky Tobacco Product Co.**

Incorporated

Louisville, Kentucky

Apple Bud with Aphis. Best time to spray

## Vegetable Standards

(Continued from page 35.)

### Salsify.

A good type resembles a well-formed parsnip, broad at top, smooth and straight, gradually tapering to tip, free from side roots, texture firm and crisp, skin light brown in color. Flesh should have a milky appearance when cut, and a small core.

### Spinach.

Specimens should be large with heavy foliage; broad, dark green, tender leaves, free from disease and insect injury.

### Squash.

Winter: Should be large, heavy and firm in texture, with color and shape according to variety. Should not be over-ripe.

### Vegetable Marrow.

Large size, oblong in form, smooth and even, with uniform thickness and good weight. Texture firm and not over-ripe. Color varies from a creamy yellow to a mottled green.

### Tomatoes.

Medium in size with an even, well-rounded shape, smooth, fine, well-colored skin, firm texture, good weight and a small eye. Not over-ripe. Blossom end should be left on sample. Color varies according to variety—may be pink, bright red, or yellow. Specimens should be uniform.

### Turnips.

Medium size with smooth, symmetrical form, free from side roots, firm in texture, and heavy. Cross-sections should show fine, firm, evenly colored flesh. Color varies from white to light yellow, according to variety.

## Grow Vegetable Seed

Growers of root crops of all kinds who are likely to need seed for planting in 1919 would do well to take steps to insure at least a partial supply by growing it themselves. This can be done only by the use of roots already grown and now in the ground or held in storage. Such crops as carrots, beets, onions, turnips, rutabagas, parsnips, and salsify are involved.

### Shortage of Seed Threatened.

Weather conditions in the regions where the chief seed supply of these crops is produced have been very unfavorable so far this year. This fact, together with the certainty that the usual European sources can not be relied upon to supply us, threatens a very considerable shortage for next spring's plantings. Since it takes two years to produce these seeds, this shortage can only be alleviated by the planting for seed of roots already grown.

Seed of the crops mentioned can readily be grown. It is highly desirable that persons having uniform, well-selected, and sound roots should plant some of them for seed.

### How to Plant Roots.

Parsnips and salsify, being hardy, can be most easily provided. The shortage of these is not serious, as the amounts needed are not large. For such roots as must be stored, the time is at hand to choose those to be used for planting for seed production. It is of paramount importance that they be gotten into the ground as early as the soil and weather conditions permit. The prospect for a successful seed crop of these roots is very much improved if there is opportunity for root growth before the tops are started by warm weather. It is necessary to cover the roots with one or two inches of

## Business as Usual

**THE ST. CATHARINES COLD STG. & FDG. CO.  
LIMITED**

*The Old Reliable Headquarters for Spray Materials, Pumps and  
All Fruit Growers' Supplies*

Our supply of Sulphur has arrived, can ship orders same day as received. We sell "Grasselli" Brand Lime-Sulphur Solution and Arsenate of Lead, "Niagara" Soluble Lime-Sulphur, Bluestone, Black Leaf 40, Fertilizers, Baskets, Crates and Berry Boxes, "Friend" and "Gould's" Power Sprayers and the labor-saving "Friend" Spray Gun.

*Order NOW From the Firm that Always Has the Goods On Tap*

**St. Catharines Cold Stg. & Fdg. Co., Ltd.**  
St. Catharines - Ontario



soil to protect them from frost and light freezing after planting.

Rows of beets, carrots, onions, turnips, and rutabagas should be spaced from 3 to 4 feet apart. Plants should stand from 2½ to 3 feet in the row for all but onions, which may be spaced 6 inches. Cultivation should be thorough and shallow. The soil should be in good condition and should be fertile. It is often desirable to support the seed stalks by staking, but not essential in any case except that of onions. Bulletins describing how seed may be grown may be ob-

tained on application to the Dominion Seed Division, Ottawa.

I believe the Food Controller could give some protection to the producer and shipper of fruits and vegetables by making it compulsory for the consignee to accept shipments of perishable foods ordered by them when same arrives in good condition. The practice of holding up carload shipments at destination on the least possible chance of complaint against the shipment, and then en-

deavor to compel the consignor to reduce the sale price, probably all because of a falling market, is not a fair business method, and is not permitted under the Food Control Act of the United States.—Geo. McIntosh, Traffic Expert, Dominion Food Division, Ottawa.

Peach growers will find interesting information in Circular No. 23, issued by the Georgia State Board of Entomology, of Atlanta, Georgia, entitled "Helpful Hints on Dusting Peaches."



## IMPERIAL SERVICE

If you are in doubt about the proper lubricant, *ask the Imperial Oil man*. He will give you courteous attention and sound advice on your lubrication problems. That is part of Imperial Service.

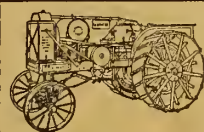
## LOOK TO US FOR LUBRICATION ADVICE

**T**RACTORS, automobiles, stationary engines, threshing machines and binders, present different problems in lubrication. When you burn kerosene in place of gasoline, you change your lubricating requirements. Tight and loose bearings—cylinders and axles—require different lubricants. There is no one best lubricant for all purposes.

But there is a scientifically correct and extremely efficient lubricant for each type of engine and fuel. There is an oil for every lubricating condition. At Imperial Oil stations in all parts of Canada, you can find the oil that will make you forget lubrication troubles and give you the full power and usefulness of your machine.

Each Imperial lubricating oil is sold in steel barrels and steel half-barrels—most convenient and economical. There's no waste. You use every drop you pay for. And it's uniform and clean.

## A Correct Lubricant for every Farm Machine



For Gasoline Engines,  
Tractor, Auto or  
Stationary

**POLARINE OIL**  
**STANDARD GAS**  
**ENGINE OIL**

For Kerosene Engines,  
Tractor or Stationary

**POLARINE OIL**  
**HEAVY**  
**IMPERIAL KERO-**  
**SENE TRACTOR**  
**OIL**

(Recommended by Inter-  
national Harvester Co.)



For Open Bearings of  
Farm Machinery

**PRAIRIE**  
**HARVESTER OIL**

—very heavy body,  
resists cold, won't  
thin out with  
moisture

**ELDORADO**  
**CASTOR OIL**

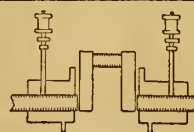
—a thick oil for worn  
and loose bearings



For Steam Cylinder  
Lubrication, whether  
Tractor or Station-  
ary Type

**CAPITOL**  
**CYLINDER OIL**

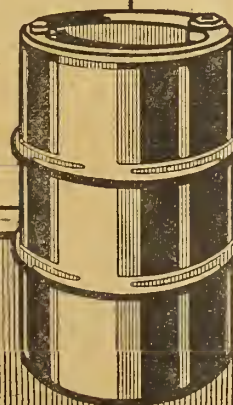
—the standard pro-  
duct for steam  
cylinder  
lubrication



**THRESHER**  
**HARD OIL**

For  
Grease  
Cup  
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cation  
of Bear-  
ings

a clean  
solidi-  
fied oil  
high  
melting  
point



# IMPERIAL OIL

LIMITED

BRANCHES THROUGHOUT CANADA





## Remember the Flowers

While every garden should produce food this year, add a touch of beauty to it with some flowers. It will make your home more attractive and you'll get greater pleasure out of your garden work.

When ordering your vegetable seeds, include some of our high-grade varieties of annuals and perennials. Here are a few of our most attractive ones.

Giant Comet Aster, mixed 10c Pkt  
Antirrhinum (Snapdragon), 5c Pkt  
Calliopsis or Coreopsis ..... 5c Pkt  
Candytuft, choice mixed, .. 5c Pkt  
Cosmos, early flowering, mixed ..... 10c Pkt  
Mignonette ..... 5c Pkt  
Nasturtium, dwarf, mixed ..... 10c oz. Pkt  
Nasturtium, tall, mixed, 10c oz. Pkt  
Poppy, The Shirley ..... 5c Pkt  
Sweet Peas, Keith's Sterling mixed, 10c per oz.; 1/4 lb., 25c; 1 lb., 90c.

**GEO. KEITH & SONS**  
KING ST. E., TORONTO, ONT.

I will deliver to you car Fertilizer, twenty tons bulk, and sell it to you for the plant food it contains. Nitrogen, thirty cents lb.; Potash, thirty cents; Phos. acid, five cents; Lime, twenty-five cents hundred pounds. Green Ground Bones for sale for your fowl.

**GEORGE STEVENS**  
364 Mark Street, PETERBORO', ONT.

## Plan for Cooperage Stock

F. C. Whitman, Annapolis Royal, N.S.

Apple shippers know that if they have a large crop this year the supply of cooperage stock will not be equal to the demand for barrels. Within the past twelve months cordwood has jumped from \$4.50 to \$8.50 a cord for dry wood, and lumber has advanced 50%. This condition is proving interesting to many owners of woodland and should lead to more care of growing timber and a better and larger production from wood lots. In Nova Scotia wood of this kind has seldom been treated or handled as an annual producing crop.

Outside of the bigger interests in lumber production, the matter of cooperage and the pressing need of an annual supply of barrels and boxes should appeal strongly to the farmer. For many years dependance has been placed on the saw mills for a supply of side boards, and log ends to be cut into heads and staves. This supply has fallen off, although the price of material has advanced to twice its former cost. The supply of hoops has been uncertain for several years, and notwithstanding the importation of cooperage and hoops from New Brunswick, Ontario and abroad, the cost of a barrel has increased, and it is likely to be more difficult to obtain and dearer in the future.

Nearly every farm in the Annapolis valley has a wood lot, which with proper care can be made a source of profit in producing wood for farm use and for cooperage. The pinch in coal these years makes a generous woodpile at the dooryard look pretty good.

For stave wood spruce is the best. It only requires a small sized tree; and now is the time to consider whether it would not be good planning to let the wood lot produce stave wood. A thinning out of too thick a growth, trimming off the low branches, letting in the light and air, will quicken the growth, and turn a wood lot thicket into a producer of good wood.

Just before the war, a buyer of hoops could not obtain supplies in Nova Scotia, and on enquiry found that the hoops required could be imported from France at a price delivered in Halifax the same as usually paid for this kind of hoop produced in New Brunswick and Nova Scotia.

The French grow the hoop poles as a crop; they have acres of hoop pole trees that are systematically cut every year; and are thus able, not only to supply their own wants, but also export to other countries. Similar care for young birch in this country might be made to produce an annual

crop, and a plot of land so cared for would have an enhanced value.

The food supply has become one of the main considerations in the winning of the war. For this reason a greater consumption of such food products as fruits and vegetables is being urged upon the people of Canada. Surely, therefore, it is not only our patriotic duty, but to our personal and financial advantage to carefully look after our orchards as well as by extending, where possible, our efforts to field crops. With reasonable prices, it is probable that 1918 will see an enormously increased consumption of these foods.

I am very much pleased with The Canadian Horticulturist.—Mrs. Ward, Toronto, Ont.

## SPRAYERS

A complete spraying outfit at a very low price. Write for catalogue of the Canuck Sprayer—a large number in use, small, compact and highly efficient. Only weighs 600 lbs., including engine. Mounted or unmounted. Immediate shipment from stock guaranteed. Write sprayer department.

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## APPLE BARRELS

We ship them all over Ontario.  
Machine-made, Standard size.  
Get our prices.

Contracts made with Fruit Associations.

**SARNIA BARREL WORKS,**  
Sarnia, Ontario.

## DON'T NEGLECT THE ORCHARD

ORDER YOUR MATERIALS AND EQUIPMENT NOW

**Soluble Sulphur, Lime Sulphur, Raw Sulphur, Arsenate of Lead [Paste or Powder], Calcium Arsenate, Dusting Mixtures, Dusting Sulphur**

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Oldest established Spray business in Canada. Our Spray Calendar, Catalogues and History of Dusting, are free. Order to-day.

**Niagara Brand Spray Co. Ltd. . . . . Burlington, Ont.**



Trade Mark



## UNITED STATES GRADING LAWS.

In view of the changes that it is understood may be made by the Dominion Government during the present session of Parliament in the standard grades of apples the following information concerning new grading regulations which it has been proposed shall be established by the United States Government should be of interest as well as the Massachusetts Apple Grading law and the New York law governing the second grade of apples and ungraded apples. It has been proposed that four grades shall be established in Canada, a number 1, a number 2, a domestic grade and a number 3. These were described in our April issue.

## United States Regulations.

The proposed new United States regulations are as follows:—

"Standard A" shall consist of hand-picked, properly packed apples of one variety, which are well grown specimens, normal in shape, of not less than fifty per centum of good color for the variety, and which are practically free from dirt, insect injury, fungous disease, bruises, and other defects, except such as are necessarily caused in the operation of packing.

"Standard B" shall consist of hand-picked, properly packed apples of one variety, which are well grown, and practically free from insect injury, fungous disease, or other defects; provided that apples having healed-over insect punctures, small scab or blotch infections, fruit spots, or other defects not including worm holes, which, taken singly or collectively, do not materially deform or discolor the fruit, shall be admitted to this grade.

"Unclassified" shall consist of apples which do not conform to the foregoing specifications of grade, or which though conforming are not branded in accordance therewith; provided that if more than ten per centum of the apples show decay, or worm holes, or are badly deformed or badly discolored by scab, blotch, insect injury, or other defects, the package containing them shall be marked "culls" in addition to the other marks or brands required.

A tolerance of 6 per centum below the standard shall be allowed in the Standard Fancy grade, 10 per centum in the Standard A grade, and 15 per centum in the Standard B grade; provided that not more than half the foregoing tolerance values shall be allowed on any single grade specification or defect. Such tolerances shall apply to size, color, and other grade specifications and shall be computed by counting or weighing the specimens which are judged to be below the standard for the grade in any respect, and those which are found to be smaller than the minimum size, marked on the package.

In all the grades specified, the apples included in the face or shown surface shall fairly represent the size, color, and quality of the apples in the package.

Marking requirements. Every package of apples which is repacked shall also bear upon the same end of the package the name and address of the person by whose authority it is repacked, such name and address to be preceded by the words "repacked by."

## Massachusetts Apple Grade Law.

The Massachusetts Apple Grading Law reads:—

"Massachusetts Standard A" shall include only apples of one variety, which are well matured specimens, properly packed, of medium color for the variety, normal shape, sound, practically free from disease, insect and fungus injury, bruises and other defects except such as are necessarily caused in

# RENNIE'S SEEDS

## For HIGH Production

### LOOK FOR THE STARS

Every page in the Rennie 1918 catalogue is a guide to War-time production. But there are a number of outstanding values and these are called to your attention by a star border such as encloses this.

**S**EEDS of high productive power are a vital War-time necessity. Not only must every square yard of available ground be made to produce, but Rennie's Seeds must be sown to ensure the finest possible crop. It is a War-time duty. When buying from dealers insist on Rennie's. The following seeds can be obtained from dealers or by mail.

### PLANT THESE NOW!!

	Pkt.	oz.	¼ lb.	lb.	5 lbs.
<b>BEET</b> —Crosby's Egyptian.....	.05	.25	.85	2.50	
<b>CABBAGE</b> — Danish Summer					
Roundhead .....	.10	.90	2.75		
<b>CARROT</b> — Rennie's Market					
Garden .....	.10	.40	1.20	3.50	
<b>CORN</b> —Rennie's Golden Bantam	.10		.25	.65	
<b>LETTUCE</b> —Burpee's Earliest					
Wayahead .....	.10	.35	1.00	3.00	
<b>ONION</b> —Early Yellow Danvers	.10	.40	1.35	4.40	
Rennie's Extra Early Red....	.05	.35	1.00	3.75	
<b>PEAS</b> — Little Marvel.....	.10		.15	.45	2.00
Senator—Best Second Early ..	.10		.15	.45	2.00
<b>TOMATO</b> — Bonny Best.....	.10	.60	1.75		
Blue Stem Early (King Edward)	.10	.60	1.75		
<b>TURNIP</b> —Breadstone (Swede)..	.05	.25	.75	2.50	

<b>TURNIP</b> —Breadstone (Swede)..	.05	.25	.75	2.50	
		Prepaid		Not Prepaid	
		lb.	5 lbs.	lb.	5 lbs.
<b>ONION SETS</b> —Yellow Multiplier Sets	.30	1.40	.20	.90	
White Multiplier Sets.	.50	2.25	.40	1.85	

### FLOWER SEEDS

	Pkt
New Giant Asternum—Mixed.....	.15
Rennie's XXX Defiance Balsam—Mixed.....	.15
Rennie's XXX Hybrids Climbing Nasturtium—Mixture.....	.10
Rennie's XXX Chameleon Dwarf Nasturtium—Mixture.....	.10
Grandiflora Phlox Drummondii—Mixed.....	.10
Rennie's XXX Giant Spencer Sweet Peas—Mixture.....	.15
Rennie's XXX Mammoth Mixture Verbena.....	.10

When buying from dealers, insist on Rennie's. If your dealer hasn't them, we will ship direct. 4

**THE WILLIAM RENNIE COMPANY LIMITED.**  
**KING & MARKET STS TORONTO**  
 ALSO AT MONTREAL WINNIPEG VANCOUVER

## GOOD CROPS YEAR AFTER YEAR



What a difference that would make to many a farmer's bank balance. Well, it's possible—and the Spramotor can bring it about. We are sole makers of the world's foremost spraying machines, the

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in many styles and sizes from \$7 up. Send us particulars of your spraying needs and we will forward by return mail, absolutely free, a copy of our valuable illustrated work on Crop Diseases, also full details of a Spramotor that will best do your work. Write to-day

Made in Canada—No Duty to Pay.

**SPRAMOTOR WORKS, 4015 King St., London, Canada**



## The Farmer-Banker Alliance



You go to your lawyer for legal advice; to the doctor for medical advice; why not to The Merchants Bank for financial advice?

If you want a loan to buy cattle, hogs or equipment—if you want information as to how to invest money—come to those who make a business of financial matters, and are in a position to give you sound and impartial advice.

## THE MERCHANTS BANK

Head Office: Montreal. **OF CANADA** Established 1864.

with its 102 Branches in Ontario, 32 Branches in Quebec, 19 Branches in Manitoba, 21 Branches in Saskatchewan, 53 Branches in Alberta, and 8 Branches in British Columbia serves Rural Canada most effectively.

WRITE OR CALL AT NEAREST BRANCH.

## CLEANER and BETTER FRUIT RESULT FROM SPRAYING



If you have had trouble in selling your apples or other fruit at good prices, because they have been scabby, wormy and distorted, why not insure thorough spraying by using a

### *Spramotor*

It isn't a SPRAMOTOR unless we made it

Thorough spraying will enable you (under normal conditions) to produce at least 75 per cent. No. 1 fruit, and at the same time improve the condition of the trees.

The Spramotor has demonstrated its superiority in performance and build. There is a machine suited to your particular needs—hand or power. Prices from \$7 to \$400.

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Write to-day for further information and Free Illustrated booklet on crop diseases.

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### PERRY'S SEEDS

Alpine and perennials, unique collection; many new varieties unobtainable from any other source.

Hardy and adapted for Canadian climate.

**HARDY PLANT FARM, ENFIELD, ENGLAND**

### SANDER & SONS ORCHID GROWERS

The Finest Stock in the World

Catalogue on Application

**ST. ALBANS - ENGLAND**

the operation of packing; provided, that apples of one variety which are not more than five per cent. below the foregoing specifications may be graded as "Massachusetts Standard A".

"Massachusetts Standard B" shall include only apples of one variety, which are well matured, properly packed, practically normal shape, practically free from disease, insect and fungus injury or any other defect that materially injures the appearance or useful quality of the apples, and which may be less than medium color for the variety: provided, that apples of one variety which are not more than ten per cent. below the foregoing specifications may be graded as "Massachusetts Standard B."

"Ungraded." Apples not conforming to the foregoing specifications of grade, or, if conforming, not branded in accordance therewith, shall be classed as ungraded and so branded.

"Section 4. The minimum size of the fruit in all grades, including the ungraded, shall be marked upon the package, and shall be determined by taking the transverse diameter of the smallest fruit in the package at right angles to the stem and blossom end."

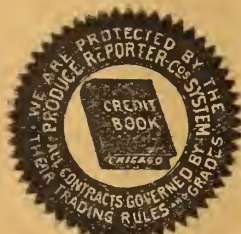
#### New York Grades.

The New York law requires that the "New York standard B grade" shall consist of apples of one variety, which are well matured, hand-picked, properly packed, practically normal shape, practically free from dirt, disease, insect and fungus injury; or apples of one variety which are not more than fifteen per centum below the foregoing specifications on a combination of all defects or five per centum on any single defect.

"Ungraded. Apples not conforming to the foregoing specifications of grade, or, if conforming, are not branded in accordance therewith, shall be classed as ungraded and so branded. The minimum size of the fruit in the package shall also be branded upon it as hereinafter specified and in addition to the other marks hereinafter required."

A 1918 edition of the well known booklet, 5,000 Facts About Canada, by Frank Yeigh, is being distributed by Canadian Facts Publishing Co., 588 Huron St., Toronto. It is full of interesting information about Canada and things Canadian.

**TREES & SHRUBS**  
**BROWN BROTHERS Co.**  
NURSERYMEN LIMITED  
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## Good Prices Always For Your Fruit and Vegetables

OUR facilities enable us to realize top prices at all times for your fruit, vegetables or general produce. Aside from our large connection on the Toronto Market, we have established branch warehouses with competent men in charge at Sudbury, North Bay, Cobalt, Cochrane and Porcupine. In time of congestion on the Toronto market we have a ready outlet through these branches. We never have to sacrifice your interests.

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References: The Canadian Bank of Commerce (Market Branch) and Commercial Agencies.



## The Outlook for Small Fruit

L. Harrison, Manager, Waterford Fruit Growers' Association, Waterford, Ont.

From the Waterford District we ship about one million boxes of strawberries, and about one-half of that amount of raspberries. Our patches are looking well, though we have a reduced acreage, and perhaps rather thinner rows. Prices this year are bound to run high. Every berry we grow will be wanted, and it is up to us to put our fruit on the market in better shape than we have ever done before.

My reason for looking for high prices is, that the demand will be great for both raspberries and strawberries for canning and preserving purposes. While the importation from the States is likely to be heavy, yet the supply is not likely to exceed the demand, owing to the enormous export demand for jams and canned fruits. Canada and the States are practically the only countries able to fill this demand. The few ships available for transportation and our nearness to the Mother Country means that the bulk of the goods must come from this continent.

Domestic consumers of berries will also show an increase—the urgent need of conserving every ounce of food will make the matter of home canning of special importance. We must also look for a probable increased consumption of all fruit during

## MR. GARDENER

To aid in greater production we are growing hundreds of thousands of choice vegetable plants. Quality plants are the prime requisite to make your efforts worth while. We recommend the following choice kinds.

**TOMATO PLANTS**—John Baer, Bonny Best, Chalk's Early Jewel, Matchless, The Stone, Greater Baltimore, strong transplanted plants at 35c per dozen; \$2.40 per 100; \$20.00 per 1,000.

**CABBAGE**—Copenhagen Market, Early Jersey Wakefield, Allhead early and best late sorts ready for planting out—20c per dozen; \$1.50 per 100.

**CAULIFLOWER PLANTS**—Dry Weather, Gilt Edge, Early Snowball, Early Erfurt; 25c per dozen; \$2.00 per 100.

**CELERY PLANTS**—Paris Golden Yellow and White Plume at 20c per dozen; \$1.50 per 100.

For \$2.00 you can select 100 plants of the above, not less than ten of a kind. Also for \$2.50 a beautiful collection of fifty flower plants for window and garden; each variety assorted colors.

5 Geraniums, 5 Coleus, 5 Salvia, 5 Snapdragon, 5 Verbenas, 10 Giant Petunias, 5 choice assorted ferns, 10 choice aster plants.

### ROSES

Choice Hybrid Tea Roses, suitable for garden or pot culture. These will flower all summer, strong 2-year-old plants in good variety of colors—Ophelia, White Killarney, Killarney Brilliant, Sunburst, Richmond and Mrs. Geo. Sawyer & Hoosier Beauty—6 for \$1.00; 12 for \$1.75.

*Cash Must Accompany Orders*

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MITCHELL - ONTARIO

## An Attractive Angle Steel Frost Fence

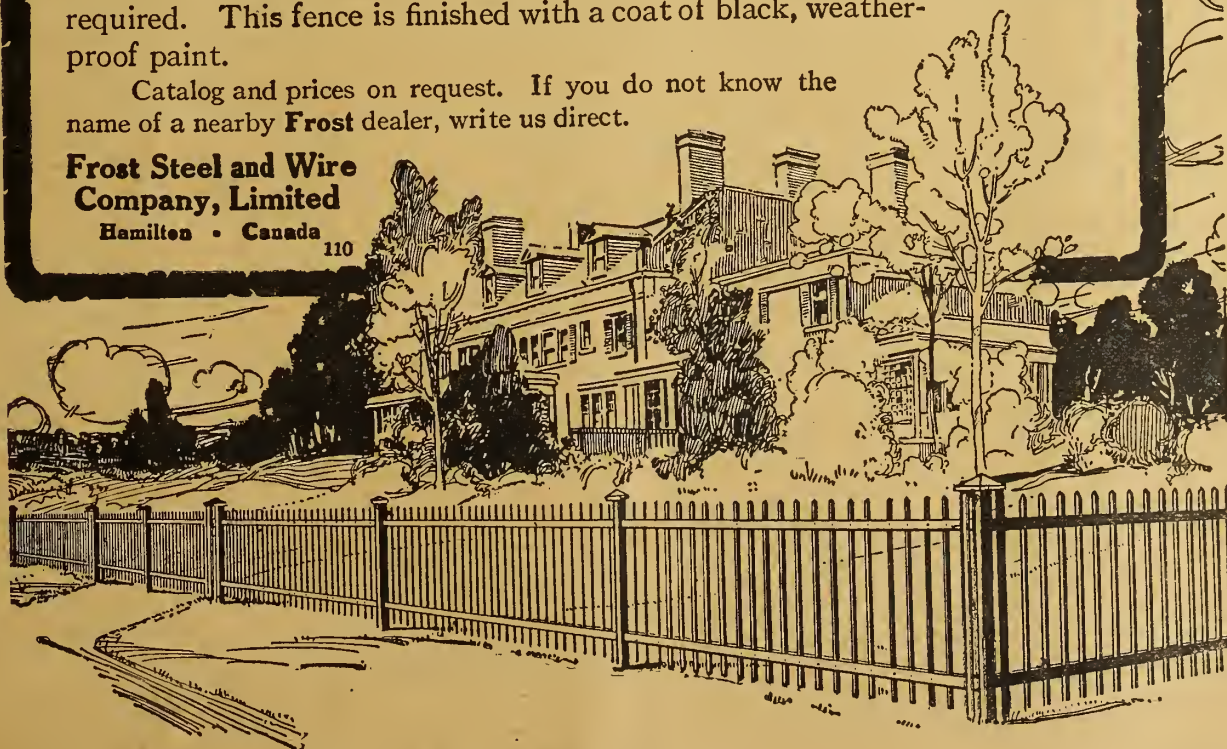
This Picket Fence is massive and dignified in appearance. It acts as the frame to a picture, by setting off the grounds and buildings to good advantage. City homes, country estates, parks, libraries, church-yards, cemeteries and schools take on an added charm and beauty when surrounded by this permanent **Frost Angle Steel Fence**.

Gates, single or double, are made to match the fence, which is furnished in panels eight feet in length. Shorter panels are furnished where required. This fence is finished with a coat of black, weather-proof paint.

Catalog and prices on request. If you do not know the name of a nearby **Frost** dealer, write us direct.

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### THE STOVE WITH 3,000,000 FRIENDS

3,000,000 housewives have discovered the way to better cooking, cooler kitchens and less work. They use the New Perfection Oil Cook Stove.

Ask *your* neighbor. She knows the New Perfection Oil Cook Stove is dependable and easy to operate. She knows the Long Blue Chimney gives a clean, intense heat—without odor, or smoke. She knows the convenience and economy of using oil for fuel.

The New Perfection Oven bakes unusually well—makes the stove a complete cooking device.

The Cabinet adds to the appearance of the stove and provides extra room for utensils.

*Royalite Coal Oil gives best results.*

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BRANCHES IN ALL CITIES

**NEW PERFECTION**  
OIL COOK STOVE

## TREES

### For Spring Planting

Two year old Apple, Pear, Plum, Sweet and Sour Cherry Trees, Dwarf Pear and Quince. Any variety at about one-half the usual price. All varieties strictly A No. 1, straight and clean.

Your orders solicited. Write for prices.

**FENWICK NURSERIES**  
FENWICK, ONT.

## PANSY

### "Canadian Beauties"

If you wish to enjoy Pansies of great Perfection in form, coloring and size, we offer you, under the above title a choice product. Every flower is a queen; every plant a picture to behold. It is a blending of every imaginable color and combination of color. Per packet ..... 50c

Delphinium—"Majestic Giants" " " from a choice collection of named varieties. Packet ..... 25c  
WM. McSKIMMING, Pansy Specialist  
230 ELIZABETH ST., GUELPH, ONT.

their respective seasons, owing to the need of conserving bread, meat and other food stuffs.

I anticipate a further reduction in the acreage of raspberries. For the last few years we have found this crop to be anything but a really paying concern. The factories have not been able to give us a remunerative price. This has caused many growers to do away with their patches. In addition the increased difficulty in getting them picked and the higher prices which the grower has had to pay to get them picked has discouraged many from planting. I cannot see that the future should warrant any man to desist from planting, as we are not likely to see low prices prevail again for some time.

Some of us are apt to groan over the labor situation. As far as the picking is concerned, we shall get the fruit picked and must be prepared to pay more, but to get the help is the most important. There is the Women's National Service Organization, which last year we tried at Waterford. Many farmers held back from taking advantage of this help. They felt certain that the girls would never stand a hot day and would give in too readily. Let me tell you right here that they rendered us most valuable services. They were a credit to their organization, and a credit to themselves, and that, in spite of the hottest summer we can remember. Don't despise the help these girls are again offering the grower this year. Make all the use you possibly can of them, and encourage the movement, which is patriotic and national. It may interest some of you to know that our village merchants are considering closing their stores three days a week while the berry crop is on and turning out to help pick. This will release quite a few hands to help. If this spirit prevails throughout the fruit sections, much will be done to relieve a possible shortage of picking help.

### Women's Help

Dr. A. J. Grant, Thedford, Ontario.

If we are blessed with a good crop of apples this season we will have to depend very largely upon female help. The young women and girls of this country have responded nobly to the call for help from all quarters. Their assistance during last year's fruit harvest was invaluable, and we should be ready to pay par value for their labor every time. While true patriotism is calling these noble women to manual labor, we must not forget that we are being helped over stony places and we should do our utmost to make life pleasant and agreeable for them. Pay them the best wages that conditions will afford, but we have not done enough then, unless we reciprocate in the spirit which sends these willing hands to help us. A great deal of the picking will have to be done by women and women sorters, after some experience and careful teaching, will distance men altogether.

An excellent bulletin, entitled The More Important Fruit Diseases of Ontario, by Prof. J. E. Howitt and Prof. Lawson Caesar, of the Ontario Agricultural College, is timely, instructive and valuable. It deals with the dusting of trees for insects and diseases, pear blight, pear scab, leaf spot of pear, little peach, and many other subjects of the same character. Write for it to the Ontario Department of Agriculture, Toronto.



## Long-Stemmed Asters

C. F. Arnott, Port Whitby, Ont.

THESE are few (if any) annuals that can compete with the aster for cut flowers if allowed to grow without pruning. If, however, long stems and large flowers are wanted (and I think most people would like to have them) my method of pruning will produce most beautiful long-stemmed bloom.

The centre or main stem of the aster seldom produces a perfect flower, so when the bloom is being formed I cut it off just above the laterals. The growth is then all forced into the side branches or laterals. These will shoot up and grow rapidly. Several stems and buds will start on each lateral. Keep these all pinched off, just allowing the terminal bloom to develop. It will be necessary to go over them several times, as they keep growing on for a week or two.

To grow still larger bloom and longer stems I allow only three or four side stems to grow on each plant, taking the others off before they get too large. If the grower has a good rich loam, well fertilized the previous fall, gives his plants thorough cultivation, waters them if the season is dry, and follows my instructions regarding pruning, he will be delighted with results.

We used the Canadian box for some years and were reluctant to try the Oregon box, but two years ago experimented with it, and have found that it gives the greatest satisfaction as our clients receive the apples in better condition. We always get the end in one place. We had a great deal of trouble one year in using the box with the end in two places, and will never use that kind of a box again under any circumstances.—Mr. Hinds, Forest, Ont.

**BISHOP BETHUNE COLLEGE**

OSHAWA      ONTARIO

Visitor: The Lord Bishop of Toronto.

**A Residential School for Girls.**

Young Children also received.

Preparation for the University. Art Department, including drawing, painting, wood carving and art needlework. Toronto Conservatory Degree of A.T.C.M. may be taken at the School. Fine, healthful situation. Tennis, basketball, skating, snowshoeing, and other outdoor games.

For terms and particulars apply to the Sister-in-Charge, or to the Sisters, of St. John the Divine, Major Street, Toronto.

## Come As You Are

Albert College is pre-eminently a preparatory school. It takes you just as you are, and fits you for whatever vocation in life you choose. The different classes include Literature, Music, Art, Theology, Physical Culture.

### A Complete Business Course

can be taken at Albert. Many opportunities will open after the war for men and women trained for commercial life. Our commercial courses are under the supervision of a trained accountant, and every facility is afforded students of obtaining a thorough, practical business education.

Write us for a college calendar and particulars of course in which you are interested.

Fall term commences September 9th.

**ALBERT COLLEGE, Belleville, Ont.**

E. N. Baker, Principal.

# ACCO SPRAY

## THE KING OF BUG KILLERS

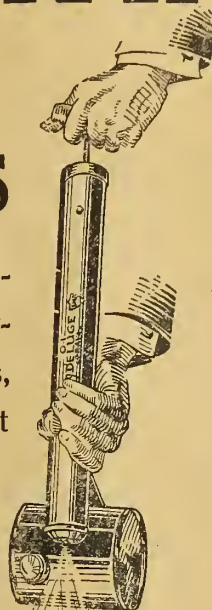
Acco Spray will save your potato and other crops by destroying all harmful bugs, moths, fleas, worms or slugs, no matter what kind they may be.

Use Acco Spraying materials. They stand all tests.

**ACCO CHEMICAL CO.**  
Limited  
**TORONTO**

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The finest varieties in the world.

Our valuable cultural directions Free.

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## CABBAGE PLANTS

Of all leading early and late varieties, 45c per hundred, mail prepaid; \$2.50 per thousand, express collect. Also cauliflower, brussels sprouts, celery, onion and tomato plants. Ask for price list.

**HEROLD'S FARMS**

FRUITLAND - - - ONTARIO  
Niagara District.

## Northern Ontario

A vast new land of promise and freedom now open for settlement at 50c an acre in some districts—in others, Free.

Thousands of farmers are responding to the call. Here, right at the door of Southern Ontario, a home awaits you.

For information as to terms, regulations and railway rates to settlers, write to

**H. A. MACDONELL,**  
Director of Colonization,

Parliament Bldgs., TORONTO, CAN.

**HON. G. HOWARD FERGUSON,**  
Minister of Lands, Forests and Mines.



*They're  
Growing  
Fine!*

From Spring to Fall you'll hear this expression used over and over again, with ever-increasing satisfaction, by gardeners who have planted Ewing's Seeds.

The splendid promise of the first few weeks, marked by good germination and lusty growth, is more than fulfilled as the season advances—for

## EWING'S SEEDS

are "thoroughbreds." They come from choice selected plants, and reproduce the same.

Don't take chances—get Ewing's Seeds—the kind that for nearly half a century have been producing bumper crops. Write for our new Illustrated Catalogue, and if your Dealer hasn't Ewing's Seeds, order from us direct.

**The William Ewing Co., Limited**  
Seed Merchants, McGill St., Montreal.

Ewing's superb blend of mixed Giant Spencer Sweet Peas

Composed exclusively of Giant Waved Spencer varieties, blended in proper proportions of bright colors and including several new hybrids of exquisite shades, many of which, when sufficiently tried up will be introduced as new named varieties. **Pkt. 10c; oz. 35c; ¼ lb. \$1.00; 1 lb. \$3.35.** Sent postage paid—Cash with order. 54



## Good vs. Poor Seed Potatoes

Experiments have been conducted at the Central Experimental Farm, Ottawa, to compare seed of the same varieties of potatoes from various sources, in order to learn whether potatoes were better for seed from one part of Canada than from another. The results were very striking in 1907, the first year the experiment was tried, and the results each year since have shown more and more the great importance of planting seed of strong vitality and free from disease.

The yields of potatoes had been good at Ottawa up to the year 1906 from home grown seed, but in that year and the two succeeding ones the yields were poor, owing to unfavorable weather conditions. Since 1906 Ottawa seed has shown great inferiority to that grown in some other parts of Canada. Seed from Nova Scotia yielded from two to five times as much as Ottawa seed in 1906, 1907 and 1908, and Saskatchewan seed, in later years, gave differences just as great. Following are some of the results obtained:

Yields of Green Mountain potatoes from various sources, in 1917, grown side by side at Ottawa: Northern Ontario seed, 400 bushels per acre; New Brunswick seed, 341 bushels per acre; Ottawa seed, 85 bushels per acre.

Average yields of eleven varieties at Ottawa: Saskatchewan seed 368 bushels per acre; Ottawa seed, 96 bushels per acre. Seed from other parts of Canada will give just as striking differences in results.

Wherever potatoes grow vigorously, as a rule, until the tops are cut down by frost in the autumn, there will good seed potatoes be obtained, provided they are free from disease. Such sources of seed can be found in all the provinces of Canada where the days and nights during the growing season are relatively cool, and where there is usually a good supply of moisture in the soil.

There is, however, a great difference in the quality of seed stocks of the same variety in the same districts, and it is important to learn, if possible, what kind of a crop the seed came from. It has been shown by experiment at Ottawa that the best results were obtained from immature seed, where home grown seed was used, but immature home grown seed has not been found as satisfactory as seed from those parts of Canada where, as a rule, the main part of the crop is immature, though of good marketable size when the plants are cut down by frost.

Potato growers living in those parts of Canada where the potato plant dries up prematurely owing to heat or drought; or is weak in vigor from disease, will find it very profitable to obtain seed from other more favorable sources, and from the results at Ottawa it will repay them to obtain new seed every year. Even if seed is not obtained from a distance it will, it is believed, pay to use potatoes for seed which have been grown on the heavier and moister soils near home, than those which were grown in the light soils which become very hot during the summer. Experiments conducted at the Ontario Agricultural College, Guelph, Ontario, confirm the results obtained at Ottawa, both in regard to the importance of obtaining seed potatoes from the cooler parts of Canada, and in regard to the value of immature seed.—Experimental Farm Note.

The Annual Report of the Dominion Experimental Farms, including the report of the Division of Horticulture is being distributed by the Department of Agriculture, Ottawa.



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Send card to-day for McConnell's 40-page Free Plant catalogue. Tells you about the great Everbearing Strawberries and Raspberries; also standard varieties of Strawberries, Raspberries, Currants, Gooseberries, Grapes, Asparagus, Seed Potatoes, Fruit Trees, Shrubs, Ornamentals, Roses, Etc.

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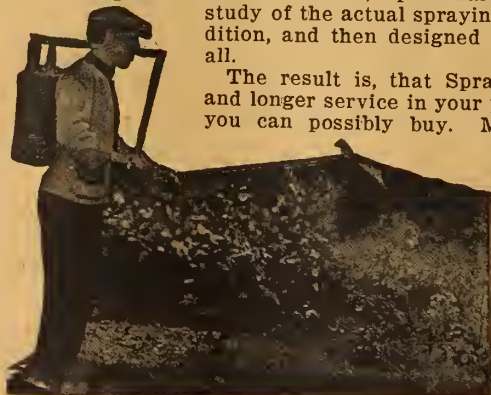
The result is, that Spramotors will give greater satisfaction and longer service in your particular field than any other sprayer you can possibly buy. Made in many different styles—both hand and power. Write for free descriptive booklet and treatise on Crop Diseases.

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**Shrubs**

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HAMILTON :: ONTARIO

It is recognized by our public men and leaders that the food situation is graver than at any time since the beginning of the war. If Great Britain and our Allies are to be kept supplied with food the utmost efforts must be made to secure a larger production. Thus the food supply becomes a vital factor in the final decision.

Too much emphasis cannot be placed on the value of vacant lot and back yard gardens. Every citizen who can possibly produce food will render a great service, no matter how small his contribution may be. If every home had its war garden this year, what an enormous amount of food would be produced collectively. In Port Arthur last year the Garden Club produced \$26,527 worth of vegetables. One plot, 50 x 100 ft., grew \$203.36 worth of food.

Financial gain is not the only profit, for gardening inculcates lessons of industry and thrift. The pleasure, too, of eating vegetables grown in your own garden is something to be remembered.

**CULTIVATION**—When preparing your garden be sure to cultivate it well. Well cultivated ground is essential to success. It must also be carried on throughout the summer to keep down weeds and conserve the moisture in the ground.

**GOOD SEED**—Above all things, secure good seed—with the best germinating qualities. Labor and soil count for little when poor seed is used.

**FERTILIZER**—For best results most soils, particularly vacant lots and back yards need at least some fertilizer. A quantity of commercial fertilizer will go far toward ensuring a satisfactory crop.

**INSECTICIDES**—Do not let the insect pests and blight take the cream off your crop. By spraying your vegetables at the proper time you will secure healthy, growing plants.

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We Grow Them All and We Know They are Good

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Established 1856

Confidence is the greatest factor that enters into the buying of seeds, since you are buying not a finished product, but only the means by which your garden may be either a success or a partial or complete failure. You will make no mistake in placing confidence in Simmers' Seeds. Catalogue Free on application.

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TORONTO ONTARIO

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## DOUGLAS GARDENS

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Contains a complete list of a number of new plants that will interest customers this season.

A fine assortment of Paeonies. Perennial plants of all kinds. Shrubs and roses.

### BEDDING PLANTS

Standard Fuchsias from 2 to 3 feet. Carnations of the finest varieties. Heliotrope, Cowslips, Salvia, Salpiglossis, Snapdragons, Pentstemon, Lobelias, Pansies, Ageratum, Verbenas, Asters and Stocks.

**ERICK ERICKSON**  
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## CLASSIFIED ADVERTISEMENTS

Advertisements in this department inserted at the rate of 15 cents a line, each line averaging seven words. Part lines count as whole lines, minimum of two lines accepted. Strictly cash in advance.

### BEES

**FOR SALE**—Ginseng roots and seeds, or exchange for bees. P. Wilson, 283 Evelyn Avenue, Toronto, Ont.

**GOLDEN AND THREE-BANDED ITALIAN**; also Carniolan Queens—tested, \$1.00 each; Untested, 75c each. For larger lots and bees in packages, nuclei, etc., write for prices. C. B. Bankston & Co., Buffalo, Texas, Leon Co.

**SWARTS' GOLDEN QUEENS** produce golden bees of the highest qualities. Satisfaction guaranteed. Mated, \$1.00; 6 for \$5.00; Tested, \$2.00. D. L. Swarts, Rte. 2, Lancaster, Ohio.

**APIARY HELP WANTED**—Male or female, with or without experience. June, July, August. No out-apiary, smoking prohibited. States qualifications and salary expected. G. A. Deadman, Brussels, Ontario.

**BEES WANTED**—Full colonies, ten-frame Langstroth hives preferred. State full particulars and price. T. Logier, 132 Glenholme Avenue, Toronto.

### BEE SUPPLIES

**SWARMING CONTROLLED**.—No additional fixtures needed; unnecessary to clip queens; done solely by manipulation. Successfully used for eight years. For particulars address. Trimble & Thompson, Wapello, Iowa.

**FOR SALE**—Danzenbaker comb honey supers, (new), made by the A. I. Root Co., 10-frame size for plain sections 4 x 5. Can furnish sections. Quantity 10-frame bodies, covers, bottom boards. Will Ellis, Niagara Falls, Ont., R. R. No. 3.

### EMPLOYMENT

**WANTED**—Young man of good habits to work with bees. State age, experience and wages. Mrs. B. F. Detwiler, 1579 Gouin Blvd., Montreal, Que.

**COMPETENT**, all-round horticulturist, seeks position as Park Superintendent. Grower of general stock outside or under glass, or salesman of seeds and horticultural supplies. Life experience, age 37, best of recommendations. Disengaged to suit. Please state salary, etc. Box 30, Canadian Horticulturist, Peterboro', Ontario.

**EXPERT ORCHARDIST AND FRUIT FARMER** with life experience, desires position. Thoroughly understands cultural methods, pruning, grafting, spraying and marketing of orchard fruits, renovating old orchards, etc., as well as small fruits. Age 36, married, four children. Write, stating salary first letter, to Edwin J. Tucker, Auburn, Kings Co., N.S.

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**WANTED**—First-class white honey, the coming season's production. Will pay ruling prices and supply tins. Foster & Holtermann, Limited, Brantford, Ontario.

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**ALL KINDS OF FARMS**—Fruit farms a specialty. Write for Catalogue. W. B. Calder, Grimsby.

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**YOU WANT "Reliable Seeds,"** get our Seed Price List and Save Money. Morgan's Supply House, London.

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**ORDER FALL BULBS NOW** and save half. Get Import Bulb Catalogue at once. Morgan Supply House, London, Ontario.

### SPRAYS

**SAVE MONEY**—Get our Spraying and Garden Supply Catalog. Morgan's Supply House, London.

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### SULFOCIDE and CAL-ARSENATE

—a new combination which bids fair to replace the old Lime Sulphur-Arsenate of Lead and Bordeaux-Lead mixtures, in both orchard and garden. It is more powerful and much less expensive. 1 gallon and 3 lbs. makes 150 gallons of spray.

Send for circular

B. G. PRATT CO., Mfg. Chemists  
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## Books and Bulletins

During the past few months a number of unusually fine books and bulletins dealing with the fruit, flower and vegetable growing have reached The Canadian Horticulturist. Among them are the following:

The Principles and Practice of Pruning, by M. G. Kains, Lecturer on Horticulture in Columbia University, is a book of over 300 pages, well illustrated, that deals with the whole subject of pruning in a practical, comprehensive yet simple manner. The illustrations are particularly valuable. It may be purchased through The Canadian Horticulturist for \$2.

The World Book Company, Yonkers-on-Hudson, New York, has compiled a farm diary which is a business record and account book that has been prepared after the plan outlined by E. H. Thomson, of the United States Department of Agriculture. It contains suggestions for keeping cash accounts, and is so ruled and arranged as to greatly facilitate the keeping of accurate records of farm sales and expenditures. The price is \$1.50 post paid.

A very complete bulletin, well illustrated, dealing with the Control of Diseases and Insect Enemies of the Home Vegetable Garden, being Farmers' Bulletin 856, may be had on application to the Division of Publications, the United States Department of Agriculture, Washington.

People desiring to encourage boys and girls to take an interest in gardening, should secure a report of the "Potato Growing Contests for boys in Carleton and Russell Counties," which is being distributed through the Canadian Seed Growers' Association, Ottawa.

## PEERLESS PERFECTION

### A RUNAWAY HORSE

can't break a Peerless Fence. No fiery bull can make a dent in it, hogs can't push through the spaces.

It holds them all securely. Ask your nearest dealer to show you the Peerless farm fencing. See the heavy, crimped horizontal wires that allow for all expansion or contraction in extremes of temperature. See the famous Peerless lock that holds the intersections in a firm, non-slippable grip. See the Peerless farm gates. Your dealer guarantees the Peerless to give satisfaction and we stand back of him unconditionally.

### Letters Like These from Halifax to Vancouver

The Banwell-Hoxie Wire Fence Co., Ltd.

Hamilton, Ontario

Dear Sirs: I am writing a testimonial as to the strength of your PEERLESS Junior Chicken Fencing. Mine is four feet high. It turned two horses, each weighing 1400 pounds. They ran full tilt into the fencing about 2 rods from each other at the same time. The result was that they turned a summersault over the fence, alighting on their heads and necks, scratching them up some, but the fence remained intact.

Yours truly,

JOE BOOTHROYD.

Surrey Centre, B. C.

The Banwell-Hoxie Wire Fence Co., Ltd.

Hamilton, Ontario

Gentlemen: I have handled your fence for four years and find it a good, strong and durable fence, and find that the galvanizing is first-class. In referring to this I have a fence that I put on four years ago across a gulley and the water is as high as the second wire and it is not rusted nor broken yet. I have a team of heavy horses that ran into the fence last summer and did not break or damage it in the least, and I am glad to say that in the four years I have handled your wire I have had no complaints about it.

Yours truly,

DAVID CUMMINGS.

Bowesville, Ont.

### The Fence That Saves Expense

It never needs repairs. It is the cheapest fence to erect, because, owing to its exceptionally heavy top and bottom wires, but half the usual amount of lumber and posts are required. SEND FOR LITERATURE and address of nearest agent. We also make a complete line of poultry and ornamental fencing. Agents nearly everywhere. Agents wanted in unassigned territory.

THE BANWELL-HOXIE WIRE FENCE COMPANY, Ltd.

Winnipeg, Hamilton,  
Man. Ont.





# THE CANADIAN HORTICULTURIST

Vol. 41 - No. 6  
JUNE - 1918

TORONTO, ONTARIO

50c. per Year  
3 Years for \$1.00



## FRUIT EDITION

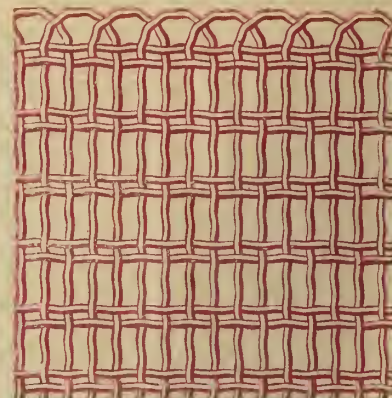
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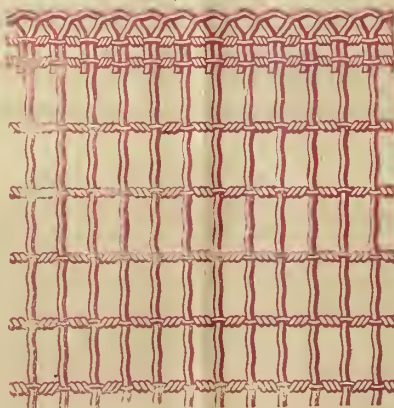
Below we give freight-paid prices to any station (except electric) in Old Ontario on orders of \$15.00 or over. Prices for New Ontario quoted on request.

### Quebec and Maritime Provinces-

We have opened a warehouse and office at Montreal to handle Eastern shipments and correspondence. Ask our branch, 14 Place Royale, Montreal, Quebec, for "Ideal" prices, freight paid to any station in Canada, east of Montreal.

### Style No. 278 "Ideal" Lawn Fence

Uprights No. 9, crimped, securely held in place by two No. 13 gauge horizontal galvanized wires twisted together. Uprights 2½ in. apart, horizontals, 6 in. apart.



Style 278 "Ideal" Lawn Fence.

#### Price per running foot.

Height	Galvanized	Galvanized and painted
36 inch . . . . .	10 cents	11 cents
42 inch . . . . .	11 cents	12 cents
48 inch . . . . .	12 cents	13 cents

### Style No. 138 "Ideal" Lawn Fence

Similar in construction to Style No. 278, but made with pickets 1½ in. apart at bottom.

#### Price per running foot.

Height	Galvanized	Galvanized and painted
36 inch . . . . .	14 cents	15 cents
42 inch . . . . .	15 cents	16½ cents
48 inch . . . . .	16 cents	17½ cents

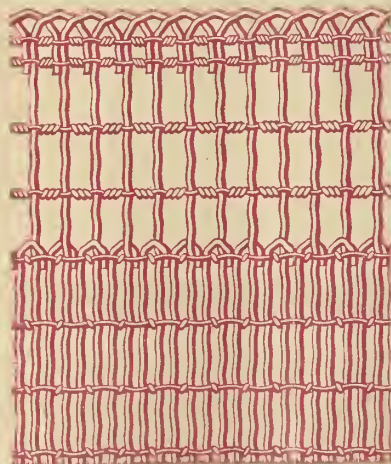
### "Ideal" Lawn Gates

With filling to match any style "Ideal" Lawn Fence.

Length	Height	48 inch	42 inch	36 inch
3 feet long . . . . .		\$3.25	\$3.15	\$3.10
3½ feet long . . . . .		3.50	3.25	3.15
4 feet long . . . . .		3.75	3.50	3.25
10 feet long . . . . .		7.00	6.75	6.50
12 feet long . . . . .		8.00	7.75	7.50
13 feet long . . . . .		8.25	8.00	7.75
14 feet long . . . . .		8.50	8.25	8.00

For Scroll Top Gates, less than 6 feet long, add 50 cents to above same size plain.

For Scroll Top Gates, 6 feet and over, add \$1.00 to above same size plain.



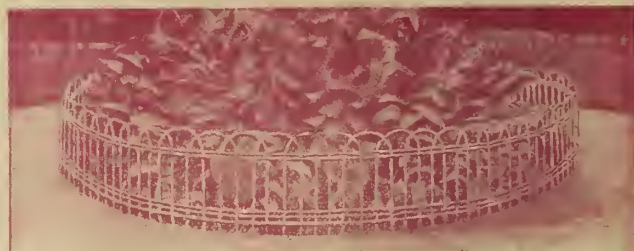
Style 138 "Ideal" Lawn Fence.

### Style No. 225 "Ideal" Lawn Fence

Made throughout of No. 9 hard steel galvanized wire. All wires being crimped, interlaced and locked with each other so they cannot slip. Uprights 2¼ inches apart, horizontals 6 inches apart, supplied in any length roll wanted.

#### Price per running foot.

Height	Galvanized	Galvanized and Painted
36 inch . . . . .	13 cents	14 cents
42 inch . . . . .	15 cents	16 cents
48 inch . . . . .	16½ cents	17½ cents



"Ideal" Flower Bed Guard.

### "Ideal" Flower Bed Guard

Design and construction correspond with the style numbers of "Ideal" Lawn Fence.

#### Price per running foot.

##### Style—No. 225

Galvanized	Galvanized and Painted
12 in. high. 18 in. high 12 in. high 18 in. high	7 cents. 8 cents. 8 cents. 9 cents.

### Place Your Order at Once

"Ideal" Lawn Fence and Flower Bed Guards will be supplied in any style and length of roll wanted. If a more complete description of gates and fence is desired, send for free catalogue. Remit by Bank Draft, Post Office Order or Express Money Order.

**The McGregor-Banwell Fence Co., Limited**  
Walkerville - Ontario



# The Canadian Horticulturist

Fruit Edition

Vol. XLI

TORONTO, JUNE, 1918

No. 6

## Marketing Basket Fruits\*

P. J. Carey, Chief Fruit Inspector, Toronto

**M**ARKETING forms the strongest link in the chain governing fruit handling. The grower may work long hours and diligently and entail heavy expenditures in an effort to produce fruit of the best quality and prepare it for the market, but if he fails to market it well, much of his hard work is in vain.

The plain meaning of marketing is the passing of some commodity from the producer to the consumer. Successful marketing is a case where the consumer makes a purchase of a package or packages of fruit, and on account of its superior quality is so well satisfied that he wants more. Faulty marketing is a case where the consumer finds himself in possession of a package or packages of fruit, either of poor quality or fraudulently packed, or perhaps both, and is so displeased with his purchase that not only does he not want any more, but he is perhaps for a long time thereafter, suspicious of all packages, even when of fine quality. It does not require much brains to realize the far-reaching effect on the fruit industry in either direction, of two cases such as those cited.

The difference in result means the difference between success and failure. This is where the whole secret lies. It is difficult to successfully market a poor product. On the other hand, when you have produced a good article it is already half sold.

Most of us can recall a time or a number of times, perhaps, when we were attracted specially by fine packages of fruit, and while we had no intention of buying, yet we could not resist taking home a basket. We can also recall cases of having gone out with the intention of buying, but finding qualities irregular or unattractive came home empty-handed. Few of us realize just what the sum total of such experiences mean to the fruit industry.

The word "quality" has more significance in the fruit industry than in perhaps any other trade. This is on account of the variable and perishable

nature of the product, and because fresh basket fruits placed on the market cannot be called a staple article. I do not deny that fresh fruit is a splendid article of food, and fills a large place in the household supply, but generally speaking it is something of an extra.

A staple article, when there is a scarcity, jumps to a high price. This

Then comes honest packing and attractiveness of pack.

Too much emphasis cannot be placed on the need for grading peaches. The placing of fruit of different qualities and sizes in the same basket is now out of date as a practice by the best growers in every peach growing country. Such a pack does not please



The 11, 9 and 6-qt. baskets are here shown. The recently enacted Dominion legislation will make the use of the 9-qt. basket illegal and standardizes the other two sizes. Note article on page 128.

happened in the case of potatoes last year. It is not so with basket fruits. When our peach crop was almost a total failure, the consumers soon made up their minds that they could go without peaches, and prices ruled but little above ordinary years. This was the case in the face of a shortage of perhaps nearly a million baskets.

Growers of basket fruits should realize where they stand when it comes to the matter of disposing of a large crop. If it is true that their product cannot be called a staple, it means that it has a somewhat limited demand. Their first thought then should be to cater to the tastes and fancies of the consumers, by placing before them for sale an article of such quality, and so packed that they cannot resist buying. The first essential then on the part of the grower is to produce fruit of a high quality, packed at the proper time.

any trade. The high class trade is ready to pay a high class price. It has no place for the lower grades, and often will go without rather than take mixed packs. The packing too can be done with much more ease, when fruit is sized. It is impossible to make a good smooth job of packing fruits of different sizes in the same basket. Their is a danger, too, when all sizes are present, of the packer putting the larger fruit on top of the basket, and then, of course, getting into trouble with the inspectors.

The grading of tomatoes is also practiced by the best growers. I look upon the grading of basket fruits as one of if not the most advanced step in fruit handling.

### Packing.

Few growers seem to be sufficiently impressed with the importance of the condition in which their fruit lands on the market. The Canadian peach is

\* An address delivered before a meeting of the Niagara Peninsula Fruit Growers' Association.





Yellow transparent apples grown under irrigation on the Dominion Experimental Farm, Lethbridge, Alberta.

a very delicate fruit, and will not stand rough handling. It has little or no resistance, and the soft touch of the handler will go a long way to prolong its life.

One of the drawbacks to our peaches is the short life of the fruit. Under ordinary conditions forty-eight hours seems to be the limit. Often even then the fruit is quite affected. If the growers could see the condition of a large percentage of our peaches when the fruit reaches the housewife, they would be impressed with the importance of careful handling. This involves proper packing.

I found last season that few of the growers paid any attention to the placing of the fruit diagonally in the baskets. In the packing of peaches of No. 1 quality, say at least in two sizes, care should be taken that one specimen does not lie directly over another. In order to have a proper pack, each tier should contain the same number of specimens. Then, when packed diagonally, each fruit rests in a pocket.

Where peaches of different sizes are packed indiscriminately in tiers, without any attention being paid to pocketing the fruits, it is in my judgment a long way from intelligent up-to-date peach packing. It is cruel to pack fine, large and very often over-ripe peaches in such a way that the car motion will cause the fruit on top to be almost buried in that below, by the time

it reaches the market. Even in the case of the heaped basket, the same rules should apply. Of course, in the case of packing the No. 2, or small sizes, the placing diagonally may not be followed, or for that matter the placing in tiers.

In the case of No. 1 fruit some objection may be taken to the placing of the same number in each of the three tiers, on the ground that fruit in the top tier would be necessarily larger than that in the tiers below, which would constitute a violation of the packing law. In the proposed six and eleven-quart baskets, the flare is reduced to a minimum, and the difference in size of fruit in the top and bottom tier will not be very marked. Every No. 1 peach should have a fair color. There are easily three sizes in what may be called No. 1 peaches; one size being commercially as valuable as another. The proper filling of the basket with these three sizes can be accomplished without any fear of violating the law.

#### Manner of Selling the Fruit.

The methods of selling packed fruit can now be reduced to practically two: shipping to the commission man and selling locally at stations. Both ways have good points in their favor, and are also faulty in some respects. Speaking for the commission men as a whole, I can testify that in most cases there seems to be a desire on their part to handle the fruit to the very best advantage, and I believe, generally speaking, the growers receive fair and honest treatment.

There is one fault that is apparent among the commission men. When there happens to be a scarcity of fruit on offer, or say at the time when a new fruit is first making its appearance on the market, they are apt to take advantage of the scarcity and jump the prices out of sight regardless of the quality of the fruit. The retail man then finds that he has paid an exorbitant price for what is little better than trash, and while he is laboring hard to sell it without a loss, the fruit goes into decay. Nothing in my judgment could be more reprehensible than this method of selling. The retail man who has been bitten goes back determined to buy safe next time, and the consumer, who finds that he has paid an extremely high price for an inferior article, is not too ready to repeat his purchase.

Many things can be said in favor of local buying at stations. The competition between buyers should make it possible for the grower to get the last cent for his fruit. This method of marketing too, tends to distribute the fruit over a larger area, on account of the activity of the many buyers who are anxious to do business. There is one fault, however, with this method

of marketing, and that is, the grower loses his identity, and consequently takes no responsibility for a faulty pack, or loses interest in growing fruit of good quality.

In the apple district north of Lake Ontario, we found that where f.o.b. sales were effected and prices fixed, the packers lost interest in the pack, and in such cases the standard of pack was lowered. This seems to be one of the weaknesses of human nature, from which few of us are free. The grower too, who counts on selling locally, is not so apt to care for his orchard in order to raise the best quality of fruit. This latter weakness on the part of the grower is intensified by the fact that the buyers fix each day a flat price to all for a certain kind of fruit, regardless of quality.

If the buyers had the courage to discriminate sharply in prices according to quality of fruit, it would tend to raise the standard all round.

The shipping of peaches by earloads to different points of distribution should be encouraged. I know of no better way of marketing the fruit crop. There are thousands within shipping distance who never have had an opportunity of securing a basket of our peaches. Distribution of fruit is the secret, and I think the consumption could be almost doubled, if special efforts were made by the associations and dealers to have representatives at the different points to distribute car lots of fruit.

#### Growers' Names on Packages.

The law relating to closed packages requires the name and address of the packer plainly on each package. North of Lake Ontario, in the apple district, we find this the strongest safeguard in the packing law. In fact the law would be little use without this clause. It has been urged that this clause should be inserted in the law governing open packages as well. If the growers were obliged by law to stamp their names on every package, they would think twice before placing it on some of the packages now finding their way into the market. The fruit industry is the business of the growers, and every man should be big enough to undertake his share of the responsibility, and stand behind his pack.

#### Increasing Apple Yields

Spreading fertilizer in circles beneath the spread of branches of apple trees has returned greater profits than applying an equal quantity over the entire squares of ground occupied by the trees in orchards of cooperators of the Ohio Experiment Station. An annual gain of three barrels of apples per acre has resulted on an average of



four years by confining the fertilizer to the tree circles in the section kept under tillage with cover crops, and in the section kept in grass mulch the gain has been 6 1-5 barrels over the yield obtained where the fertilizer was spread over all the ground in the orchard.

It will pay, however, to use a larger

quantity of fertilizer and spread it over the entire surface, in order to produce more grass in the open spaces with which to mulch the trees. Fertilizer applied to the trees in grass mulch has returned a four-year average annual gain of 91½ barrels per acre above the yield obtained from unfertilized trees in the same section.

## Cultivation of the Strawberry

H. L. Spooner

**A**LTHOUGH the strawberry thrives better under neglect than any other fruit, there is no fruit that repays so well for intense cultivation. No one would think of trying to grow potatoes without thorough cultivation; yet a person who understands strawberry culture will, by the same kind of cultivation, harvest more bushels of strawberries from an acre of land than of potatoes.

The time to begin cultivation is the next day after the plants are set. No matter how well the soil has been prepared, it will settle and become hard. The rains will run the soil grains together, and then when the sun shines a crust will form, which will prevent the air from circulating through the air spaces underneath the crust.

The cultivation should be continued throughout the first season as often as once a week, and oftener if a rain comes to crust the soil. The cultivator will make a soil mulch which will aid in conserving moisture, and at the same time help to keep the soil at a more uniform temperature. By keeping the air spaces open, it aids materially in

the growth of the bacterial germs that are present in the soil, and whose work is necessary to the healthy growth of plants. It distributes throughout the soil in available condition the plant foods that have been brought to the surface by capillary action. It disturbs the seeds of weeds and keeps them from germinating.

A twelve-tooth cultivator with a leveler attachment in the rear is as good an implement as can be used. The leveler leaves the surface almost as finely pulverized as though it were raked. The cultivation can be quite deep at first, but as the strawberry roots grow and fill the soil, surface cultivation only should be used.

Most growers agree on the necessity of cultivation for the first season, but when it comes to the second season—the fruiting time—there are differences of opinion, with the majority of growers not practicing it. This seems to me to be a very erroneous idea. We cultivate everything else in our gardens. Why then should we depend upon an artificial mulch and hand-weeding, instead of cultivation, for strawberries?

The most fruitful cause of failure with strawberries is a drought shortly before or at fruiting time. If the fruiting beds are cultivated, the soil is loosened up, holding more moisture and evaporating less, and thus preventing to a large extent the effect of continued dry weather. Weeds, if allowed to grow, use up a great deal of the moisture that should go to the plants. All the loss of moisture from this source can be eliminated by thorough clean cultivation.

For the second season, cultivating should begin as soon as danger from frost is over; it should be continued every week until the blossoms come. Discontinue while the plants are in bloom, and then start again and continue until the berries are ripe. Then cultivate after each picking unless it rains and makes the ground too wet. One large grower of my acquaintance found that this method increased his yield twenty per cent., due to the increased size of the berries, which brought a higher price by being larger. The constant cultivation almost doubles the size of the plants, and the larger the plants the larger the berries.

## Peach Scab and Leaf Curl

Prof. H. H. Whetzel, Ithaca, N.Y.

Scab is quite common on some of our peaches, especially the white skinned varieties. The Early Crawford suffered severely in some New York orchards last season. Aside from the spotting or "freckling" of the fruit which reduces its market value, the dwarfing and cracking in severe cases may cause considerable loss. Dusting has proven effective in preventing this disease where



Gathering the strawberry crop on the farm of M. K. Ellis, Port Williams, N. S. Mr. Ellis is the secretary of the Nova Scotia Fruit Growers' Association.





Mr. S. H. Rittenhouse, Jordan Harbor, President of the Niagara District Fruit Growers' Association. Note article on Page 163.

## Diseases Potato Growers Should Watch

Geo. O. Madden, Dept. of Agriculture, Toronto

**B**OTH the foliage and tubers of potatoes are subject to attacks by various diseases which help to decrease the crop considerably. However, with the exception of five or six diseases which are transmitted by the disease remaining alive in the soil and thereby re-infecting the next crop of potatoes planted, the remaining diseases can be easily controlled. What is required most of all is to give more time and attention to the tubers before planting, along with careful spraying of the tops during the season; also a weekly inspection of the field in order to remove any diseased plants which might appear, is also very important.

It is necessary to have a simple working knowledge of the different diseases so as to clearly understand the reason for treating the potatoes. Besides, it makes the work more valuable and interesting to know why the various methods employed are used for the control of the different diseases. Potato diseases are more prevalent in some sections, and under certain weather conditions, than in others. So it is important to watch for the first appearances in the field.

### Three Classes of Disease.

Generally speaking potato diseases are divided into three separate classes. First, all those common diseases, like ordinary scab and late blight which are always present more or less, and cause considerable loss to some growers. Second, those diseases which are noticed when cutting the tuber for seed. Such seed if planted produces the disease in the foliage and prevents the formation of the tubers. Black leg is a good example of this class of disease. Third and least important as regards potatoes grown in Ontario, but which are becoming more prevalent lately, are those diseases such as mosaic and leaf roll. Such plants should be removed from the field, when found, and destroyed.

The simplest manner of describing potato diseases, however, is with reference to the part of the plant affected with the disease, whether it be the foliage, the stems or the tubers. The following list will give you an idea of the various diseases attacking potatoes, also the part attacked and how to control them. The serious diseases are marked by an asterisk (\*).

### Diseases Attacking the Tubers.

Late Blight Rot \*, is one of our most serious diseases. It occurs as a rot in the tubers while being held in storage. When cutting potatoes for seed, discard and don't plant those which show signs of rotting. It is also good prac-

tice to disinfect knives after cutting such tubers in a solution of corrosive sublimate.

Bacterial Rot is soft rot caused by a bacterial disease which also occurs in tubers while in storage. When cutting potatoes for seed watch for affected tubers and discard. If the bacteria come in contact with healthy tubers the disease is increased still more.

Dry Rot is another rot found in stored potatoes. It is a dry rot, and not soft and wet. This disease lives in the soil as well as in the tubers, so avoid diseased tubers and soil which has produced such potatoes.

Powdery Scab is a bad disease in Europe, which lives in both the seed and soil, the same as dry rot. It is much harder to control than ordinary scab.

Potato Canker is not a serious disease in Ontario. It produces a growth on the tubers, and lives in the soil as well as in the seed. Seed selection and rotation is needed to control this disease.

Common Scab \* lives both in the tubers and in the soil. Avoid using seed which shows signs of scab. Treat scabby potatoes with formalin or corrosive sublimate. Also avoid fields that have grown scabby potatoes, and avoid using fresh manure.

(To be Continued.)

### Bordeaux Mixture

What materials and quantities are used in Bordeaux mixture for spraying apple trees? I would like to have the proportions for say 50 gallons. Would you also let me know what quantity of arsenate of lead to use in 50 gallons for spraying apple trees?

In making up 50 gallons of Bordeaux mixture you will require 4 lbs. of copper sulphate, more commonly known as bluestone, and 4 lbs. of air-slaked lime. The ordinary procedure is to dissolve the bluestone and lime separately, each in a couple of gallons of water, and then pour both into the tank containing the balance of the water and keep stirred. The proper amount of arsenate of lead to use in spraying apple trees is 2 lbs. of the paste form, or 1 lb. of the powdered form to 50 gallons of water or Bordeaux mixture.

Never spray strawberries after the fruit has formed. The corrugated surface of the strawberry makes it dangerous to do so, as particles of the poisonous materials may adhere to the fruit, thus rendering it dangerous to health, and even life, to apply the spray after that time.

tried in New York orchards during 1917. The mixture of 90 pounds finely ground sulphur with ten pounds of powdered arsenate of lead, will not only control the scab and brown rot, but will also markedly increase the red color of the fruit. The first application should be made about the time the shucks fall, with one or two more before the fruit is ripe. A light application of dust may be made within two weeks of ripening. Spraying with Scott's self-boiled lime sulphur will also control both scab and rot. In this connection, the following results of an experiment conducted under the direction of Dr. F. M. Blodgett, are interesting. The work was done during the season of 1917, in Monroe County, this State. The variety was Early Crawford. But one application was made, and this on July 5, when the fruit was the size of the end of one's finger.

Treatment.	Per cent. Sound.	Per cent. Scab.	Per cent. Brown Rot.
Check .....	21.49	74.5	3.96
(Untreated.)			
Sprayed .....	81.5	18.4	.112
(Scott's Self-boiled.)			
Dusted .....	79.4	20.3	.194
(Sulphur, 90; arsenate of lead, 10.)			

### Leaf Curl.

The efficiency and convenience of fall spraying for the control of leaf curl was fully established last season. The exceptionally early winter, however, prevented much of the fall spraying that was planned last autumn. One of the cheapest and most satisfactory solutions for the control of peach leaf curl is copper sulphate, two pounds to fifty gallons of water. Lime sulphur, one gallon to fifteen or twenty gallons of water, is equally effective where spraying for San Jose Scale is unnecessary.



# The Increasing Menace of Cherry Maggots\*

Prof. Glenn W. Herrick, Ithaca, N.Y.

WE often hear our grandfathers say, "Why I can remember when we didn't have any bugs to fight in this country. I can remember when there were no potato bugs and when our cherries never had a maggot in them, and when we used to get apples out of father's orchard without a worm in them." Is this true in fact, or is it largely due to the rosy memories of a hungry boy dimmed by the passage of many years—memories of a boy who could eat Baldwins from the tree in June and wormy apples by the dozen, and call them good?

Out in Western Texas in a little valley running between two magnificent spurs of the Davis mountains, and known as the Toyah Valley, apples, pears, grapes and alfalfa grew a few years ago in all their pristine perfection. Insect pests were practically unknown, and the apples and pears were as free from knots and blemishes and as smooth and shapely as the cheeks of a child. It was a new country, practically untouched by the disturbing elements of human civilization. Such is the experience of every new country, and similar conditions obtained in the fruit sections of New York State and other eastern sections early in their history. There was a time when there were no codling moths and no canker worms in America. It is safe to say that there are a dozen fruit pests in the east to-day that were unnoticed or unknown thirty years ago. One has only to recall the San Jose Scale, the pear-leaf blister mite, the redbugs on apple, the green apple aphid, the grape root worm and others, to be reminded of the truth of this statement. We cannot here discuss all of the causes that have contributed to this change of conditions, but one way in which we are constantly receiving new insect pests is through a disturbance of the balance of nature and a consequent change in food habits of insects that originally confined themselves to wild, uncultivated plants.

## The Cherry Maggots.

The apple and cherry maggots offer fine examples of insects which originally fed upon wild uncultivated plants, but for some reason have changed their food habits, and are now abundant and widely prevalent on the cultivated apple and cherry. Moreover, it is within comparatively recent years that the cherry maggots have become serious pests, the first injury by these insects, worthy of extended notice, occurring

in the late nineties (1899), barely nineteen years ago. Since that time these pests have gradually become more widely distributed and more prevalent. It is probable that the cherry maggots will be in evidence more and more in the future, and forewarned is forearmed. The cherry fruit-flies are not so apt to attack the early varieties, but apparently all late sour and sweet varieties may be injured.

## Life History of the Cherry Maggots.

There are two species of the cherry fruit-flies, that are prevalent in our State. They are very similar in appearance, habits, and life history. The flies appear in early June, and soon begin to insert their tiny eggs just under the skin of the fruit. The maggots are yellowish-white and about a quarter of an inch in length when mature. They burrow in the fruit and cause it to decay. Often at picking time there is no external evidence of the maggots within the cherries, and undoubtedly infested fruit is often sent to the canner.

## Habits of the Adult Flies.

The flies have their mouthparts fitted for sucking, and as soon as they emerge from the soil they fly to the trees and begin searching the surfaces of leaves and fruit for drops of material which they may sip up and appropriate as food. It is owing to this well defined and persistent habit that the insects have been so successfully con-

trolled with poison baits. In addition, there is an interval of a week to ten days after the flies appear before they begin the deposition of their eggs. This gives ample time in which to spray the infested trees.

## Methods of Control.

In the summer of 1912 a fine opportunity was afforded for experimental work in the control of these flies. An orchard which had been badly infested during previous years and which had never been sprayed was found conveniently situated for the experiment. It was decided to try the sweetened poisoned bait, which had given such satisfactory results in the control of the closely related apple maggot. The mixture used was arsenate of lead, 5 lbs.; water, 100 gals., and cheap molasses, 3 gals. The experimental orchard consisted of four rows of Montmorency trees, with 16 trees in each row. Five trees in each row were left as a check at one end of the orchard, while the remaining eleven trees in each were sprayed with the sweetened mixture on June 10, two days after the flies were noticed on the trees. On June 24, two weeks afterward, the trees were given another application. Only a pint of the mixture was sprayed on each tree at each application.

On July 12, two crates of cherries, containing on an average 6,400 cherries each, were picked from the first row of sprayed trees. Every cherry was open-



A Huron County orchard that promises large returns. Commercial orchards are being developed in this county, while small ones are dying out, largely because of the labor shortage.

\* An address delivered before the last annual convention of the Western New York Horticultural Society.



ed and examined. In one crate picked from the tops of the trees there were seventeen maggots, while in the other only two were found. Fully a third of the fruit on the last row of the unsprayed trees contained maggots, and all of the cherries on these trees were so badly affected with maggots, plum curculio and brown rot that they were practically worthless. It must be remembered also that the fruit in this orchard was so badly infested the previous year that it was not picked at all.

In another and larger orchard in which the late varieties had been so badly infested with maggots in 1911 that they were not gathered, the trees were sprayed by the owner on May 25 and again on June 16 with arsenate of lead alone at the rate of 4 lbs. to 100 gals. of water. As a result of these two treatments the fruit developed in such fine condition that it was marketed without a single complaint. No flies were found in the orchard during the season, and no maggots were found in the fruit.

Thus we have here a clear-cut experiment in which a sweetened poisoned bait checked the flies effectively under carefully controlled conditions. In addition, we have a field experiment which afforded pretty conclusive evidence that the ordinary arsenate of lead sprays applied thoroughly and at the right time would also control the cherry fruit flies. Since the addition of molasses adds to the expense of the material and also lessens the adhesiveness of the mixture, it is more desirable to use the poison without molasses if it is equally effective.

Fortunately we now have the weight of field experiments on a wide scale in Ontario, Canada, to substantiate the experiments made at Ithaca, which have just been detailed. Although the sweetened baits were used and proved admirably effective, yet the ordinary arsenate of lead sprays are now recommended, as they proved equally effective and much cheaper. Prof. L. Caesar, of the Province of Ontario, sums up his results in the following words: "Extensive tests have shown that these insects can be thoroughly controlled by spraying the trees with 2 or 2½ lbs. of arsenate of lead with or without one-half gallon of cheap molasses to 40 gals. (50 gals. U.S.) of water."

Whichever material is used, the first application should be made, at least at Ithaca, during the early part of June or a few days before Montmorencies begin to blush red. In badly infested orchards, at least during the first season, a second spraying should be made two weeks later. To obtain the best success the matter of spraying for these insects should really be a community one, because the flies move

about quite actively, and nearby unsprayed orchards are a menace as agents of infestation.

Spraying for the cherry maggots is not an expensive matter, for comparatively little of the mixture is necessary for each tree. A gallon of the liquid, for a large cherry tree should

ordinarily be sufficient, and the spraying may be easily and quickly done. A light sprinkling of the foliage, covering all accessible parts of the tree, as the sprayer passes down one side and then up the other, is all that seems to be necessary. The flies find the drops and eagerly suck them up.

## Leaf Spot a Dangerous Disease

W. E. Biggar, Chief Fruit Pests Inspector, Hamilton, Ont.

**Y**EARs ago when the first commercial orchards came into bearing injury to fruit from disease or insect pests was rarely known and spraying was not thought of and not necessary. Good clean crops could be harvested at that time without much attention to the trees.

To-day it is simply impossible to grow fruit, especially in the southern part of the Province of Ontario, on a paying basis, without knowing how to control disease and insect pest. There are hundreds of acres of apple orchards in the province that are producing but little more than enough fruit to pay the taxes on the land they occupy. This is simply because they are neglected by not being pruned, sprayed nor cultivated. An apple tree not pruned will have in a few years a massive dense growth of wood. It then takes nearly all the strength of the tree to maintain life in its branches without producing fruit.

It is well known that during the past seven years the fruit on unsprayed orchards has been almost worthless because of disease and insect pests. One of the diseases that has caused heavy loss to the fruit grower, and is likely to do so again, this season, is leaf spot, or shot hole fungus. It affects plums, cherries and apples, causing the foliage to become sickly and yellow. This results in a premature falling of the leaves and leaves the tree in a dangerous condition because of the loss of foliage. A cherry tree badly affected with this disease will not mature its fruit. The fruit after it is about half grown remains in a half ripened condition and is almost worthless for marketing. The fruit buds for the coming year not being properly nourished and developed because of the foliage having fallen prematurely are not so likely to produce a crop of fruit the following year. Added to all this the wood of the tree does not ripen and mature properly, and after passing through a severe winter such as the past winter we may find part of an orchard and in some cases the entire orchard frozen to death.

Anyone owning an orchard can positively prevent this disease from attacking the trees by spraying with one gal-

lon of commercial lime and sulphur to 35 gallon of water. Spray before the buds burst, again as soon as the blossoms have dropped, and again two or three weeks later, the two sprayings after the blossoms have fallen will usually control this disease.

## Injured Fruit Trees

Prof. J. W. Crow, O.A.C., Guelph, Ont.

Enclosed please find several samples of leaves taken from trees in my orchard. What is wrong with them, and what should I do in order to save the trees? I planted several hundred trees in the spring of last year, and nearly all of them had leaves like enclosed samples. It makes me feel badly when I look at the orchard.—A. T.

The twigs you enclosed appear to be two from a pear and two from an apple tree. The pear shoots seem to be infected with a common and serious bacterial disease, known as twig blight, or fire blight. You should cut off and burn all twigs affected, and should be careful to cut eight or ten inches below any outward sign of infection. This disease, being a germ disease, is easily spread from tree to tree on pruning tools. I strongly recommend the use of a disinfecting solution for sterilizing the knife or pruner used after every cut. This disease is serious, and unless taken in hand at once, and kept under control, is likely to destroy the trees outright. I have made no microscopic examination of these twigs, but if you find that the trouble appears to progress down the shoot, killing the same as it goes, you may be sure the disease mentioned is the cause of the trouble, and should begin treatment at once.

The best disinfectant for tools is corrosive sublimate (bi-chloride of mercury), two or three tablets dissolved in a quart of water. Failing this bordeaux mixture, or even a strong solution of lime sulphur would do.

The two apple twigs are infected with a small caterpillar, which you may easily see for yourself on examination, and known as "Bud Moth." The insect is now too well protected among these rolled up leaves to be reached by spraying, and nothing can be done this season. The proper treatment, however, is a spray containing poison to be applied in the season when the leaves are small, preferably before the blossoms open.



# Reducing Spraying Costs\*

Prof. P. J. Parrott, New York Agricultural Experiment Station

IN the last analysis, the fruit grower himself must be the determining factor in every successful orchard enterprise. Each one without much effort on his part can probably see opportunities in the emergency that has been brought about by world conditions, whereby some economy can be effected by a readjustment and improvement of existing methods of orchard management, without any or appreciable loss in efficiency. Our most successful growers have expressed the determination to spray and the problem that confronts them is—how to get maximum results with minimum expenditure both of money and effort.

Insects and plant diseases are responsible for great losses in fruit growing. As injuries by these agents are to a large extent preventable, intelligent spraying has proven very profitable. There is no apparent reason why it should not continue to be remunerative, even during war time, since most commodities, whether from factory or orchard, have risen in value. In 1917, the prices for apples were higher in proportion than the increased cost of spraying supplies.

In planning for spraying operations, chief emphasis should be placed on those factors, which make for largest profits. In western New York the pests of major importance in apple orchards are scab, codling moth and scale, and it is in waging successful warfare against these noxious foes that the most favorable opportunities exist for obtaining largest financial returns. In certain areas some orchardists would do well to adopt special spraying precautions against red bugs and the rosy aphis.

Knowledge is in itself barren. To be effective it must be associated with skill. Moreover, there are lessons in spraying which can be best learned in the field rather than from the printed page or the lecture hall. One of the far-reaching results of the present war is the special effort by the responsible authorities to disseminate knowledge of methods of insect and plant disease prevention and control through field demonstrations, the supplying of specialists and in similar ways. No scheme for pest suppression gives greater promise for larger achievements than the plan to have local expert advice available to each grower. The movement constitutes an advanced step in the economical production of fruit and merits the hearty support of individual

orchardists and fruit-growing organizations.

Specific means for reducing cost in spraying are:

(1) Obtain lowest prices for spraying materials by consolidating orders to make carload lots.

(2) Communicate information indicating unreasonable prices or unwarranted attempts to force the placing of orders on plea of security of material to the proper government authorities.

(3) Place orders in time to have materials on hand when needed. Deliveries will probably be slow, and earlier action than usual in ordering is advisable.

(4) Use 2 lbs. instead of 3 lbs. of paste arsenate of lead in usual spraying of apple trees except in the treatment made when petals have dropped, or in orchards where leaf-rollers abound.

(5) At present prices calcium arsenate is cheaper than arsenate of lead, and experimental data seems to indicate conclusively that it may be safely employed for the spraying of potatoes. For apple orchards, prudence dictates that growers do not dabble with it too extensively, even though it appears a promising arsenical for this purpose, as standards for this arsenical have not been established, and brands by different manufacturers vary in composition.

(6) Do not make special treatments or applications of the more expensive spraying materials for such insects as red bugs or rosy aphis, etc., except

under competent advice or as experience has proven worth while.

(7) Avoid preparations of unknown merit, as they may prove ineffective unsafe and expensive.

(8) The cost of labor has reached a point where it is necessary to make one's energy go as far as it will. If a new or larger machine will do more work in less time, the purchase of a new spraying outfit may be advisable. It is here as with all purchases of up-to-date machinery, that growers should be on their guard against the appeals of false economy.

(9) Economize in time and labor by employing efficient loading and spraying devices. Time unnecessarily spent on the road or at spraying platform is so much valuable time lost in the treatment of the orchard. A "spray-gun" may oftentimes take the place of a man, and do more effective work, besides being more economical.

(10) Finally, the facts of pest experience should not be forgotten—an orchard that is neglected or indifferently managed with respect to insects and plant diseases is generally a liability rather than an asset. In spraying make each application count by thorough and careful work at the right time. Failure to maintain a high level of spraying practices throughout the growing season may have the effect of neutralizing, if not actually destroying, the benefits of earlier applications.

Efficient spraying serves a two-fold purpose: (1) It protects trees from immediate perils, and (2) It is cumulative in results against certain pests, and its beneficent influences extend into the future.



A mulch between the rows of the strawberry beds conserves moisture, keeps the fruit cleaner and improves picking conditions.

\* Extract from an address delivered before the last annual convention of the Western New York Horticultural Society.



## VEGETABLE PROBLEMS

C. C. Johnston, B.S.A., Toronto, Ont.

### Cucumber Leaves Dying.

Will you kindly instruct me what to do with cucumbers that are bearing fruit, but the leaves are dying away. I am afraid that I shall lose the vines if they are not attended to. Also instruct about spraying late turnips and cabbages?—J. A. J.

I would think from your description that the killing of the leaves of your cucumber vines is due to mildew, but it is impossible to definitely locate the trouble unless examined. Spraying with bordeaux mixture made with 4 lbs. lime, 4 lbs. of bluestone, dissolved into 40 gals. of water, and sprayed on both sides of leaves, would help to check it. For spraying cabbage for the cabbage worm, use paris green at the rate of 1 lb. to 120 gallons. If the turnips are bothered with flea beetles, spray with bordeaux mixture and paris green.

### Soil That is Too Rich.

What can be used to counteract the effect of soil that is too rich, causing vegetables to go more to tops than to roots?—L. M.

It is practically impossible to have your soil too rich for growing vegetables. Commercial vegetable growers make a practice of adding from 35 to 100 tons of manure to each acre of land each year, and I do not think it possible for a backyard garden to become too rich for the growing of vegetable crops. It is possible that your garden has been over-watered. It is a common practice with city and town growers to add quantities of water to the soil when there is really no need for it, and as a result the plants produce a mass of leafy growth. Another condition which is conducive to heavy leaf growth is shade. Another one is lack of cultivation of the soil between the rows. An application of lime, either fresh or slaked lime, which may be procured from a lime merchant or a building supply company, spread over the surface of the soil after digging in the spring, would be beneficial. It should be raked in, and after a day or two, the seed planted. If these conditions are taken into consideration, you should have little trouble in producing vegetables with fewer tops.

### Pests Cause Trouble.

I have a small plot in the rear of my house on which I have grown vegetables every year for four years, but I have decided to quit as I have been bothered greatly with different pests. Something is interfering with the roots of plants that makes them spread and appear deformed when pulled up. Is it wire worms or what? Would appreciate advice on how to kill them. Is there a commercial manure that would do? I have used horse manure and have been wondering if that may have caused the trouble. Lot is about 30 x 15 feet. What proportion would I need for successfully killing these pests?—R. P.

The only thing that I can imagine would be giving you trouble would be

that your root crops, such as beets, carrots, parsnips, salsify, etc., have come in contact with fresh horse manure. This will often cause the roots to be forked or gnarled; but if the deformity is found in other roots, for instance, tomato roots, I cannot give you any advice with the limited information you have given me. For one season at least I would not place any fresh manure on the part devoted to these root crops, but would dig the manure in the last thing in the fall in that part of the garden on which you propose growing these crops the succeeding season.

### Wire Worms.

How can I clear my ground from wire worms? It has a great many of them.—R. H.

It is impossible for me to give you a definite remedy for wireworms. This pest is one which causes considerable trouble in gardens, and as yet we have no effective means of controlling them. It is recommended that they may be effectually trapped by placing under boards bunches of clover poisoned with paris green. The land should not be allowed to remain in grass for any length of time, and it is recommended that the soil be dug in the late summer or early fall and thoroughly cultivated for a month or so. This is all the information that I can give you, and all that I know of as being available for the control of these insects.

### A Simple Greenhouse.

Do you know of any book giving instructions how to construct a small greenhouse adapted to a farmer who wants to grow some greens during the winter, and then have a good stock of cabbages, tomatoes and celery for the spring.—C. S.

A greenhouse adapted to the farmer would be most satisfactorily built after the style described under Pipe Frame Construction. These houses can be made any width desired, so far as narrowness is concerned. A house 20 feet wide could be supported with one line of pipe supports to the ridge. Concrete walls would support the plate, and on this the sash bars could be placed. If you so desire, I could send you a rough plan and approximate bill of materials for such a house as you would desire.

### Cut Worms.

What is a good remedy for cut worms?—H. L.

Use mixture of poison bran spread over the surface of the soil, close to the plants. A pail of bran, with sufficient paris green to highly color it, should be moistened with molasses until it crumbles readily in the hand. This mixture should be kept on the ground during the early part of the season.

Frame lettuce must have careful attention to make a successful crop. See that the soil is kept moist and the frame properly ventilated.

## The Sod Mulch System

Dr. A. J. Grant, Thedford, Ont.

If your orchard soil is a nice sandy loam, or light clay loam, you can save some labor by using the sod mulch system for a few years, instead of cultivating, but I am always afraid to mention sod mulch without the use of the "soft pedal," as it is hopelessly out of order on many of our good orchard soils. Then there is always the temptation, on the part of the novice, to draw off a few loads of luscious hay instead of leaving it on the ground where it belongs. Some of the finest and quite the best colored apples that I ever grew were produced by an orchard under this system, and I would not hesitate to use it on a nice friable soil at any time, but cultivation is vitally necessary on the harder soils if you are going to get real crops.

Late fall plowing is good practice in most parts of Ontario, if the orchard has been regularly cultivated, and makes work much easier in the spring. The method of leaving the trees standing in a sod strip ten or twelve feet wide will save a lot of time, and in so far as I have been able to judge, neither the trees nor the crop are any worse than under complete cultivation. Mr. Gibson, of Newcastle, one of our largest apple growers, has used this system of cultivation for a number of years, and is still using it, so this should be good evidence that the method is profitable. In my own more limited experience, I can vouch for the fact that it saves about half the labor, that is, the slow part of the work is the last five or six feet next the trees, whether plowing or cultivating. This would seem like a real war-time plan of cultivation and should be in general use, as it suits all soils.

## Transplanting Early Celery

Early varieties of celery, sown in boxes and pricked out into other boxes, may be planted to the trenches in June. Dig out a trench a foot deep and a foot wide. Clean out all the loose soil, and put a layer of well decayed manure (preferably that from a spent hotbed) in the bottom. On this place two or three inches of the finest of the soil that was taken out.

Plant the celery in two rows, each three inches from the sides of the trench, and the plants nine inches apart. Set the plants so that those in the row on the right of the trench alternate with those on the left, and vice versa. Late varieties may be similarly treated, save that the seed may be sown in a finely prepared seed bed out of doors.



# Garden Suggestions for June

Margaret McLaren, West Chezzetcooke, N.S.

**J**UNE is the month whose warm sun brings to life the larvae of the insects of the preceding year. And this month, too, sees the beginning of the growth of weed crops, which, if not attended to, will smother the tiny seedlings and render useless the time and expense of their planting. Therefore, both insects and weeds must be eliminated, if the garden is to be a success.

Aim to destroy the insects before they become full grown or numerous. An application of a solution, rather weak, of tobacco, in the proportion of one tenth of a pound to one gallon of water, boiling the tobacco, and adding one half pound common laundry soap, and one ounce of sal ammoniac, while boiling, may be used. Add sufficient water to make one gallon, when cold. In the evening apply, around the ground in the garden, being careful not to wet the leaves of the seedlings, or put the mixture too close to their roots. This will destroy garden pests, and if carefully done will not injure the plants.

To keep the weeds down, begin to hoe frequently, say, once a week, as soon as the seedlings are above ground, gently, so as not to disturb them, and between the drills. Use a fine rake to gather up the weeds, and remove them, because frequently they will take root again, or the unsightly piles will form a resting place for insects. It is most important to keep the weeds away.

Now is the time to set out plants, such as celery, tomato, early cabbages and turnips. Also, the first week in June is the proper time in some of the colder sections to plant beans, because they are tender, and the dampness and high winds of May play havoc with them. In transplanting the various seedlings to the place of permanent growth, make a hole in the drill, deep enough to accommodate the tiny root, and plant one inch deeper than as it grew in the seed bed. Be careful to put a wee pinch of earth in upon the roots, and fill up the hole gradually. This is the secret of successful transplanting. If the plant were merely shoved into the aperture, and the ground drawn about it, the tiny roots would not be able to reach the earth wall surrounding it, and the plant would die.

The best time to set out plants is after four in the afternoon, because night is coming, during which the plants can take root, free from the hot sun and during the coolness and dew of the night.

If transplanting is done when there are indications of a shower the rain will keep them alive and they will take root at once, otherwise they should be watered each evening. Do not crowd the plants. Air and sunshine develop them. It is far better to have a smaller number of well developed plants than to have many that are unedible.

Amateurs usually make the mistake

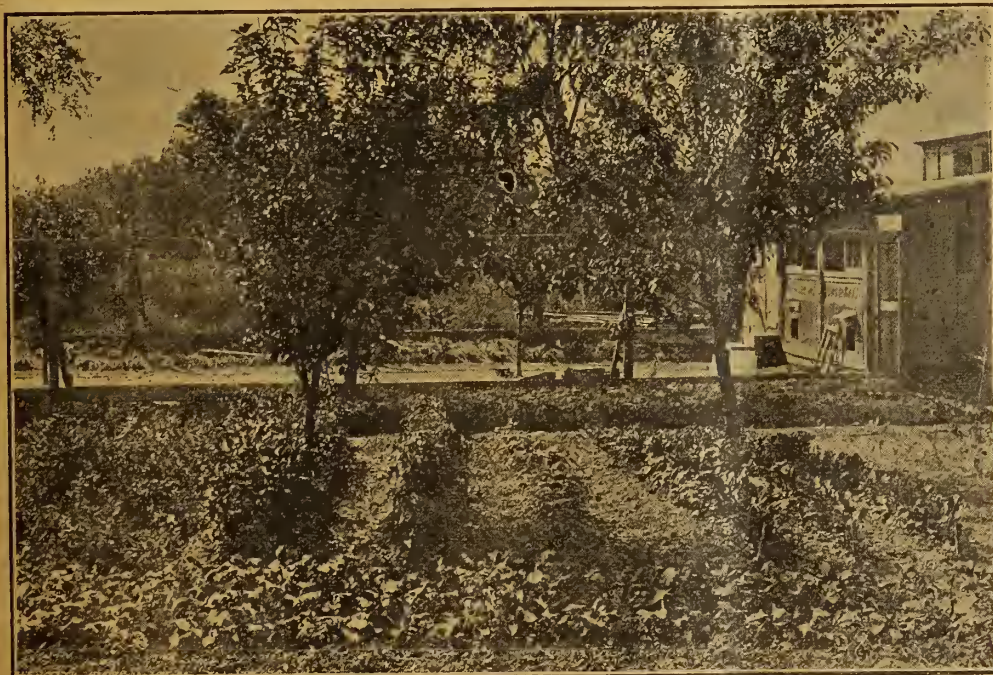
of sowing too thickly. It is well to take time when sowing seeds and to remember that most seed catalogues give the space required by the different plants. Read these and follow the advice given. Water the garden about twice a week and, if possible, use a solution of nitrate of soda. About one-half ounce to one gallon of water is enough. This gives nourishment to growing plants, particularly vegetables.

In planting beans, use wood ashes as a fertilizer, if possible. If unavailable, slaked lime, in the proportion of one pound to ten of earth and well sifted, is a good substitute. Dig the trench about four inches deep. If shallower the roots cannot get the necessary moisture, and will not produce stocky growth. Plant the beans about three inches apart, and as far as possible do not plant any that are not perfect. Draw the covering ground lightly over them with the rake and do not roll or press it. If a succession of tender pods are wanted, plant beans every eighth day until August. If wanted for winter use, those planted the first week in June will ripen and may be gathered in the autumn. Pole beans, such as the Kentucky Wonder, Dutch Case Knife, Refugee, or Scarlet Runner, produce more than the bush varieties.

When the beans are long enough, hoe them frequently, until they are in blossom. Draw the earth gently around them, and if they seem crowded remove some of them to another part of the garden, where they may be transplanted.

Do not work among the bean vines when it is damp or after a rain, because this induces rust. In making a garden, some vacant space should be left for the transplanting of plants that are superfluous elsewhere, because all vegetables can be transplanted, and no seedling that is straight and vigorous need be lost. But waste no time on spindly plants. They have overgrown in the beginning, and will not repay the time spent upon their care. If beans are doing well, do not water them with the nitrate of soda solution. Too much fertilizer is not good for beans, because it forces leaf growth instead of a prolific yield of pods or seeds. In moist, warm weather, do not water the beans. This would make their growth rank and sterile.

Watch for currant worms. They may be killed by spraying with arsenate of lead. Paris green and lime may also be dusted over plants on which worms are working, with good effect.



The owner of this garden, Mr. Walker, of Mount Hamilton, moved onto the premises in May of last year. The photograph was taken in July. How is this for quick results?



## Thin Your Vegetables

H. J. Moore, Niagara Falls, Ont.

Judicious thinning of the majority of vegetable crops plays an important part in the production of maximum yields. Improper thinning may result in the loss of a large percentage of valuable food. A criterion of successful production is not the number of plants you harvest, but the weight of useable or saleable food of good quality, therefore thin your crops intelligently and aim rather at quality and shape than at numbers, thus very little of the production of your garden will be wasted.

As a general rule vegetable crops should be thinned as soon as the plants crowd each other. This they do when from 2 to 4 inches high. Thin bush beans 6 to 9 inches apart, according to variety. Garden beets 6 to 9 inches, swiss chard or spinach beet 15 inches, carrots for use before matured 4 inches, for maturing 6 inches. Sweet corn in rows 18 inches, chicory 4 to 6 inches, chicory, whitloof or French endive, 6 to 9 inches; common endive, 12 to 18 inches, according to variety; leeks, 6 inches; lettuce, small varieties, 9 inches; large varieties for heading, 12 to 15 inches; okra or gumbo, 9 to 12 inches onions; 4 to 9 inches, when large bulbs are to be grown; parsnips not less than four inches, for large roots at least 6 inches; radishes, thin as necessary for use; salsify or vegetable oyster, 6 to 9 inches; early turnips, 6 to 9 inches; Swede turnips, 9 to 12 inches apart.

Give the thinnings from your crops to people who are not fortunate enough to possess the varieties, if you have no space to transplant them. There are very few vegetable plants which cannot be successfully transplanted, the fibrous rooted ones, especially, do well after transplanting. The top rooted kinds should be transplanted when in a small state.

## Spinach Blight

A new and troublesome disease of spinach has appeared in the south-eastern part of the United States, and our Canadian spinach growers should be on the watch for it, since it has been observed as far north as New York State. In the spinach growing sections of Virginia this blight is claimed to cause a loss of 20 per cent. of the crop.

In this disease the plants are dwarfed, and the leaves become somewhat curled and yellowed. After remaining in a stunted condition for some time, the affected plants are likely to die.

This "Blight" is not due to any known parasitic organism, but is said to be of a similar nature to the

"Mosaic" disease which occurs on tomato, tobacco, beans, cucumbers and other cultivated plants. Like these, it is carried from one plant to another, and thus may spread considerably in the field. It can be induced in a healthy plant by inoculating it with juice from a diseased plant. In the field it is said to be largely spread by insects, principally by sucking insects, of which two varieties of aphids are considered to be the worst offenders. As to seed transmission, the evidence indicates that if it is carried in this way it is only to a small degree.

If the disease appears here, our chief reliance for control will be in keeping down the insects which spread it.—Dept. of Plant Pathology, Dominion Experimental Farms, St. Catharines, Ont.

## The Cucumber Beetle

The striped cucumber beetle appears early in June on cucumber, squash, and melon vines and should be given frequent and generous applications of air slaked lime and Paris green mixed in the proportion of ten pounds of lime to one of Paris green. The squash bug which destroys plants of the same kind should be treated with lime alone.

The cucumber beetle often proves destructive to the roots of the vine. It appears as a pale straw-colored worm about the size of a cabbage maggot and may be treated with a mixture of one tablespoonful of commercial tobacco extract in a gallon of water. Apply one teacupful of the solution around each infested plant.

## Vegetable Pointers

Le Roy Cady.

Keep the cultivator going.

Peppers and egg plants may be set out.

Don't cut asparagus much after June 20. It will weaken next year's yield.

Set out tomatoes and other tender, heat-loving plants.

Keep the asparagus bed clean by cultivation as long as possible.

Endive and Chinese cabbage may be sown for fall use.

Keep the seed pods off rhubarb. Otherwise it soon becomes tough.

It's time to make another planting of peas, beans, corn, etc. Several plantings supply these vegetables over a long season.

Do not let autumn-bearing strawberries bloom until about July 1. The plant should develop strength for fall use.

## Securing Results With Vegetables

Prof. W. S. Blair, Kentville, N.S.

In order to continue a supply of certain vegetables, successional sowings of the same kind of seed may be made every ten days until the middle of June with cool season crops such as peas, radish and lettuce, and later with beans. In this way often a supply usually confined to a week or ten days may be spread over several weeks.

### Maintenance Tillage.

Maintenance tillage is the tillage required after the crops are planted. Maintenance tillage should be shallow. The object should be to keep down all weed growth by frequent shallow cultivation, and leave a fine earth covering on the surface of the ground to prevent evaporation from the soil. Two inches is the usual depth for such cultivation. When the plants are young deeper cultivation may be given, but after the roots commence to spread through the soil much injury from cutting or exposing them may result from deep cultivation.

One of the tools advisable where hand work is necessary in maintenance tillage operations is the double-wheel hoe. With this the surface soil can be worked close up to the plants and left in a fine condition, thus doing away with much of the costly hand hoeing and weeding. It cannot be used to advantage in soils which have become hard, nor where weeds have grown large. It is indispensable in small gardens and in onion growing, where a large amount of the work must be done by hand.

### Commercial Fertilizers.

Commercial fertilizers can be used to advantage in vegetable growing. One containing 4 per cent. nitrogen and 10 per cent. phosphoric acid, will prove the most satisfactory. This may be home mixed by purchasing the unmixed material and mixing it in the following proportions: 150 lbs. nitrate of soda, 400 lbs. of 15 per cent. acid phosphate. From 500 to 1,000 lbs. per acre is the usual application of this fertilizer. The practice is to sow broadcast just before seeding or planting, scattering evenly and mixing with the soil by harrowing. Fertilizer scattered at the rate of one ounce to the square yard represents approximately 300 lbs. per acre.

Where quick vegetable growth is desired, nitrate of soda at the rate of 200 to 300 lbs. per acre may prove desirable. A heavier application than this is not advisable and may prove injurious.

A great stimulus to newly-set strawberry plants is the removal of their first runners, and so all runners should be cut off until the last of June.



# Simple Irrigation Methods

**M**ANY people who have started gardens this year may have difficulty in supplying water to all parts of their land. In such cases simple methods of irrigation may be practised sometimes with considerable success. In such cases the garden plan should fit the irrigation scheme; that is, the rows should run in the direction the water flows.

If the ground is rough, level it enough to let the water flow in furrows to all portions of the garden. Make the slope from one side or end to the opposite side or end if possible. A gentle slope of two inches in 100 feet is best, but a very much steeper grade may be successfully handled by blocking up the furrows at intervals with earth or short pieces of boards until the ground is soaked. On rather steep slopes mark out the furrows with a fall of two inches in 100 feet no matter how winding the shape of the ground surface may make them. Let the garden rows follow the winding of the furrows. If there is a slight ridge through the garden which will not be cut down in leveling, and if water can be run in a main furrow along the top, then grade both slopes for branch furrows from this main one so as to distribute the water over the entire garden.

To level the ground, use a team and scraper and leveler if the garden is large enough; if it is very small, use hand tools.

If the ground to be leveled is too dry and hard to be handled, soak it well with water either by flooding, by cross furrows, or otherwise, and when dry enough to work well, do the leveling. Then run irrigating furrows about

three feet apart and give the ground a good watering. In a day or two, when the furrows have dried out somewhat, cultivate at least the furrows if not the entire surface, to keep in the moisture. Then lay off the rows and plant the seeds.

Have either single rows 18 to 24 inches apart, or double rows 12 inches apart with 18-inch spaces between the double rows, for hand cultivation. Have the rows 36 inches apart for horse cultivation. Water the plants in the single row through a furrow on one or both sides of the row and the plants in the double rows by one furrow in the middle of each 18-inch strip.

Have the irrigation furrows all made before irrigation begins. Turn water into as many of them as the stream will handle and let it trickle through to the end of the rows. Then block these rows with earth or pieces of boards at the supply ditch and open up another set for watering. Follow this plan until the rows have all had their first watering, then go over them all again, and if necessary again, until the ground is soaked.

Give the ground a good soaking about once a month as the water is available. Cultivate the furrows as soon as they are dry enough; this is important to hold the water in the ground. Also cultivate or hoe the ground frequently to keep a dust mulch cover and prevent loss of water by evaporation.

Local regulations govern the time of irrigation and the amount of water which may be used. In many cases the monthly domestic allowance will water a small garden. In some instances the

waste from a neighbor's garden, or from distant irrigating, may be turned into one's own garden. In some cities water is especially provided for garden and lawn purposes.

Do not give a light watering often, but do give a good soaking when the plants need it. An occasional soaking and frequent cultivation make the best irrigation treatment a garden can be given.

## YOUR QUESTIONS ANSWERED

Wm. Hunt, O.A.C. Guelph

### May Annuals Follow Tulips?

Would it be possible to leave early tulips in the bed after blooming and plant annuals between the rows?—E. N. O'N.

Annuals would succeed fairly well planted between the bulbs. The trouble is that thorough cultivation cannot be given when the bulbs are left in the ground. If the ground was forked up lightly, so as not to disturb the bulbs, and seeds or plants of shallow rooted annuals, such as phlox drummondii, asters, coreopsis, schizanthus, or similar growing annuals planted or sown, the result would be fairly good for the first year. Another season it would be advisable to take up the bulbs and thoroughly cultivate the ground for summer plants.

### Starting Perennials.

Should perennials such as columbine, larkspur, etc. be started in cold frames or in open ground?—E. N. O'N.

A little time might be gained perhaps by starting perennial seeds in a cold frame, but for most of the perennials the month of June is as good a time as any for sowing them. They could be sown in shallow flats or in a seed bed out of doors, with less trouble than in a cold frame, and they should be early enough for transplanting into the border early in fall, or possibly the following spring. Root divisions of perennials give quicker and better results than do plants from seed, as a rule.

### Sheep Manure as Fertilizer.

Is pulverized sheep manure, as sold at seed stores, a good fertilizer for flower beds or lawns?—C. B.

Pulverized sheep manure is one of the best and safest fertilizers for amateurs to use for either flower borders, vegetables, or for lawns. One or two ounces sprinkled around each plant after it has got started into growth, or about 2 or 3 lbs. to the square rod of lawn will prove of great benefit. The manure can be stirred into the soil around plants, and watered well when put on the lawn. For plants it may be applied once in every two or three weeks if required. For lawns it is best applied as early as possible after growth has started.



An irrigation ditch in the garden of the Dominion Experimental Farm at Lethbridge, Alberta, is here shown. An editor of The Canadian Horticulturist visited this garden last August and can bear testimony to the high quality of the fruit and vegetables it produces. Note illustration on page 146.



# The Canadian Horticulturist

COMBINED WITH

## THE CANADIAN HORTICULTURIST AND BEEKEEPER

with which has been Incorporated  
The Canadian Bee Journal.

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1. The Canadian Horticulturist is published in  
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preceding date of issue in three editions, as  
follows:

**FRUIT EDITION:** This edition is devoted  
entirely to the interests of the commercial fruit  
and vegetable growers of Canada.

**FLORAL EDITION:** This edition is devoted  
to the interests of amateur fruit, flower and  
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of town and city people especially.

**APICULTURAL EDITION:** This edition is  
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pages of matter appearing in the first and  
second issues are replaced by an equal number  
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tions, add 25 cts. a year extra for postage.

### CIRCULATION STATEMENT FOR JUNE.

Fruit Edition .....	2,071
Floral Edition .....	5,694
Beekeeper .....	1,348

Net Paid Circulation .....	9,113
Total Printed .....	9,901

Advertising rates, \$1.40 an inch. Copy re-  
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THE CANADIAN HORTICULTURIST,  
PETERBORO, ONT.

## EDITORIAL

### The Fertilizer Problem

The increasing use of automobiles in our  
cities has led to a great reduction in the  
number of horses kept, not only for private  
use, but for commercial purposes as well.  
This in turn has resulted in a great reduc-  
tion in the amount of manure available for  
gardening purposes. A few years ago people  
were glad to pay to have manure drawn  
away from their premises. To-day, in not a  
few districts, it is difficult to purchase man-  
ure.

In the various campaigns that have been  
conducted this year to promote an increased  
production of fruit and vegetables in our  
towns and cities, it is a question if sufficient  
attention has been given to supplying sub-  
stitutes in the form of fertilizers for the  
manure that is no longer available. The St.  
Thomas Horticultural Society, with its usual  
enterprise and initiative, dealt with the prob-  
lem early this year by the purchase of sev-  
eral tons of commercial fertilizer, which  
was placed at the disposal of its members  
on favorable terms. The tremendous de-  
crease in the productiveness of the soil of  
France, through the failure of the people to  
obtain their customary fertilizers, shows  
how important it is that fertility shall be  
maintained if production is to be increased.  
This is a problem which might well be dis-  
cussed at the next annual meeting of the  
Ontario Horticultural Association, with the  
object of assisting all the horticultural so-  
cieties of the province as early next year  
as possible to obtain the necessary fertilizers  
for their members. The services of the Pro-  
vincial as well as of the Dominion Govern-  
ment should be enlisted.

### Important Legislation

Both fruit growers and consumers will  
benefit by the legislation relating to the  
marketing of fruit which was passed at the  
recent session of the Dominion House of  
Commons. Because of its importance the  
bill as it passed the House is published in  
full in this issue of The Canadian Horticul-  
turist. It is significant of the times in which  
we live that a bill containing so many  
clauses which have been a cause of con-  
troversy for years, should have passed the  
House with practically no unfavorable  
criticism, and without protest from any of  
the leading fruit districts. People's minds  
are occupied with so many things to-day,  
there is not the same inclination to argue  
over minor matters, when the principle in-  
volved in any measure is recognized to be  
sound, as there used to be. This is true  
of the fruit legislation in question.

The Bill deals with so many important  
matters it is impossible to make reference  
to more than a few of them. For years  
there has been a multiplicity of sizes of  
baskets, boxes and barrels in use. This  
condition has been unsatisfactory both to  
producer and consumer, and we believe to  
the manufacturer also. The new legislation  
standardizes the size and construction of the  
baskets, boxes and barrels that may be  
used after a year's interval. While some  
of the manufacturers may feel that they  
have not been given all the consideration  
that they are entitled to, the public's interest  
must come first, and this has demanded  
action such as has been taken.

One of the chief defects in the Fruit  
Markets Act or the Inspection and Sales  
Act, has been the lack of the proper defini-  
tion of what has constituted a cull apple.  
The new legislation provides such a defini-  
tion. Although the definition may not be  
considered perfect it will go far to remedy  
the deficiencies of the past in this respect.  
An equally important improvement is the  
establishment of what is to be known as a  
domestic grade of apples, and of four grades  
in all. This will assist growers in the  
marketing of their crops and the inspectors  
in the enforcement of the Act.

Both producers and consumers have suf-  
fered through the practice of some growers  
of marketing immature fruit, especially  
early in the season, when prices rule high.  
Tens of thousands of people have purchased  
baskets of grapes, peaches and other fruit,  
only to be bitterly disappointed later to  
find that their purchases were uneatable be-  
cause of the immaturity of the fruit. This  
practice has appreciably decreased the de-  
mand for fruit, because of the lack of con-  
fidence it has created in the minds of the  
buying public. Penalties for such action  
are provided in the new Act.

One of the most annoying losses many  
fruit growers have suffered each year has  
been due to the practice of some railway  
employees and others of pilfering fruit from  
baskets and other open packages while in  
transit. Penalties are now provided to  
cover actions of this kind. While it is not  
to be expected that the practice will be  
stamped out, a few prosecutions under this  
clause of the bill will soon lead to a great  
decrease in the amount of pilfering that  
has been done.

It reflects credit upon Hon. T. A. Crerar,  
Dominion Minister of Agriculture, that he  
was able to have this legislation enacted at  
a time when Parliament was fully occupied  
with other business. The Dominion Fruit  
Commissioner, Mr. D. Johnson, and his staff,  
who have worked faithfully and capably to  
secure the improvements the bill is designed  
to effect, are also to be congratulated upon  
the adoption of the new legislation.

### Protect Shade Trees

Those who are interested in the protec-  
tion of the shade trees of our cities should  
make every possible effort this season to  
have their municipalities, where action has  
not already been taken, do all that is yet  
possible to protect their trees against the  
ravages of injurious insects, more particu-  
larly the tussock moth. Where the eggs of  
these moths have already been destroyed  
much benefit will result, as the young cater-  
pillars are likely to put in an appearance  
early in June after which their ravages will  
soon become apparent.

The young caterpillars feed only on the  
leaves, but later do not hesitate to attack  
even fruit on apple trees. In seasons when  
the caterpillars are abundant, considerable  
injury is caused by their operations. Some  
cities have taken action already with excel-  
lent results. Even in spite of the shortage  
of labor, the work should be prosecuted  
wherever there are indications that this pest  
is likely to be numerous.

### Potato Grades

The working out of the legislation enacted  
at the recent session of the Dominion Parlia-  
ment, requiring that potatoes hereafter shall  
be sold by grades that have been defined by  
the Government, will be watched with much  
interest. The suggestion for this legisla-  
tion was received from the United States,



where tests of the sale of potatoes by grades has proved most beneficial.

Legislation of this kind has been much needed in Canada. Almost every farming district grows an astonishing number of different varieties of potatoes. There has been a woeful lack of uniformity, not only in the quality of the potatoes produced, but in their size. One effect of the new legislation should be to lead to the growing of a decreased number of varieties. This will have the effect of standardizing the quality as well as the sizes of the potatoes grown. It will make it easier also for certain sections to specialize in the production of special varieties. While the bill may have to be amended in course of time, its enforcement will be productive of good and should tend to place the marketing of this standard crop on an improved basis.

In the May issue of The Canadian Horticulturist, Fruit and Floral Edition, there appeared an article entitled, "Aphids or Plant Lice and Their Control," which was credited to Dr. C. Gordon Hewitt, Dominion Entomologist, Ottawa. The article should have been credited to Mr. W. A. Ross, a member of Dr. Hewitt's staff.

## National Flower Campaign

The suggestion first made in The Canadian Horticulturist several years ago that the horticultural societies of Canada, and more particularly the Ontario Horticultural Association, might select a flower with the object of having it become known as the national flower of Canada, has been making decided headway. A year ago the Ottawa Horticultural Society took the matter up, and its President, Mr. F. E. Buck, submitted a report at the last annual convention of The Ontario Horticultural Association, expressing the views of the Ottawa Society. The report set forth six reasons why it was desirable that Canada should have a national flower. These were:

1. Nearly all other countries have national flowers.
2. A national flower signifies national personality and sentiment.
3. As a national emblem it becomes like a nation's flag, the golden cord binding together historic events and national incidents.
4. It has a definite value similar to the value of a state seal.
5. The selection of such a flower will encourage an increased interest in Canada's wonderful flora.
6. A national flower on the graves of fallen Canadians in Flanders will be as a perpetual banner over our noble dead.

Methods of carrying on the work of selecting a national flower were suggested.

In March a representative committee met in the University of Toronto, under the chairmanship of Prof. R. B. Thomson, of the Department of Botany, University of Toronto. As considerable exception has been taken to the selection of a national flower on the ground that it may interfere with the recognition of the maple leaf as the national emblem, it was pointed out that the maple leaf does not enter into the Dominion Arms as a Dominion emblem, but only as the emblem of the Provinces of Quebec and Ontario. The committee decided that nothing should be done to imperil the standing of the maple leaf, but that on the other hand it should be strengthened in every way possible. A motion was adopted recommending that the maple leaf be officially recog-

nized by the Dominion Government as our National Emblem, and be brought into more definite use in national devices.

The committee recommended the following flowers as suitable for a Canadian emblem, and for planting on the graves of Canadian soldiers in France, the columbine, bunchberry, hepatica and trillium. It was recommended that the flower should be selected from this list, but not until its horticultural possibilities had been determined by experience in cultivation.

The committee approved of the principle of the various provinces also adopting a provincial flower, and suggested that Ontario should select its flower from the list already given, and that the other provinces should be asked to submit lists.

It was recommended that in connection with the selection of a national or provincial flower, the following points should be considered:

1. The plant should breathe with the spirit of Canada, or of the province it is chosen to represent.
2. It should not be used by any other country or state.
3. It should be confined to a definite species, the best of its kind the world over.
4. It should have no horticultural rivals.
5. It should have its widest distribution in the area which it is selected to represent.
6. It should admit of easy propagation under various conditions of soil and climate and yet not become a noxious weed.

We expect to make further reference to this matter in the July issue of The Canadian Horticulturist.

## SOCIETY NOTES

### St. Catharines

Splendid work has been accomplished this year by the St. Catharines Horticultural Society in the matter of interesting the school children of the city in increased production. The society organized what is known as The Home Garden Brigade, under the chairmanship of Mr. C. A. Hesson. The Brigade distributed vegetable seeds of beets, carrots, parsnips and squash at the rate of 10c for the four packets to the boys and girls who signed a Brigade membership card prepared by the Brigade. The boys and girls who signed the card received a certificate of membership, and after their gardens had been made up and sown they were given a Brigade button.

Helpful literature was printed and sent out in the form of a circular to the parents, who were asked to see that their backyards were made tidy, sightly and healthful, to help their child to select the best place for the garden, and if necessary, to assist them in preparing the soil. Suggestions were given in regard to the selecting of the best location and soil for the garden, and on how to prepare it for use. Cultural directions were given about the growing of the vegetables.

To arouse an interest in the work two shields, one sterling silver and one bronze, are being offered in the various school districts for the best display of vegetables grown under the rules of the Home Garden Brigade. These displays must be staged on a space not more than 36 feet square, and



Four active workers in the cause of increased production in the Hamilton district are here shown, in the persons of Rev. G. W. Tebbs, a past president of the Ontario Horticultural Association, Miss Ambrose, Mrs. R. B. Potts, the Secretary of the Hamilton Horticultural Society and a live wire in many other activities, and Miss McIlwrath.

will be judged for quality, cleanliness, neatness, and effectiveness of display. The teachers will be allowed to assist in setting up the exhibits. The society expects to hold an exhibition of vegetables in connection with its community garden work, and will provide for the expense of carting displays between the schools and the place of exhibition. Committees have been appointed to look after the work in connection with each school district. The Brigade expects to enlist 1,500 school children in the work. Seventeen prizes may be won in each school, one of which will be a deposit book in the savings bank for \$2. Other Horticultural Societies who would like full particulars about this work may be able to obtain them by writing to Mr. C. A. Hesson, St. Catharines.

### Dundas

The Dundas Horticultural Society has appointed committees to increase the membership, and will endeavor to have all its members do something this season to advance the interests of the town in horticulture, and to promote the increased production campaign in Dundas and vicinity. Last fall the society gave prizes to the school sports and exhibition, which was a huge success. The society maintains several flower beds in one of the town parks, where this year it will put in a perennial bed of choice plants, as well as in the cemetery.

The Niagara Falls Horticultural Society arranged in May to have the school children addressed by Mr. Wm. Hunt, of the O.A.C. About 500 children heard the address. The same evening the Society held a meeting in the assembly room of the Public Library. Much interest was aroused in the matter of increased production through these meetings.

Rev. A. H. Scott, M.A., of Perth, Ontario, a former president of the Ontario Horticultural Association, and an active worker in the Perth Horticultural Society, has recently received the degree of F.R.H.S., through a fellowship having been bestowed upon him by the Royal Horticultural Society of England. An article by Mr. Scott on the growing of cannas appears in the Floral Edition of this issue of The Canadian Horticulturist.



# Important Fruit Legislation Passed by Dominion Government

Inspection and Sale Act Materially amended. Regulations Passed Dealing With Sale of Immature Fruits, Defining Culls, Establishing New Grades and Standard Packages. Underfilling Penalized. Much Needed Legislation at Last Enacted

THE most important legislation that has been adopted in the interests of the fruit industry in Canada since the enactment many years ago of the Fruit Marks Act, was passed in the closing days of the recent session of the Dominion House of Commons. In spite of its importance it received very little attention at the hands of the legislators, the bill being passed practically as introduced by the Minister of Agriculture, Hon. T. A. Crerar. Only about two clauses came in for serious consideration. One was Section 325 which stipulated that all apples, pears, crab apples, peaches, plums and cherries packed for sale in Canada should be sold in certain standard packages. Sir Sam Hughes claimed that while the proposed regulations might be beneficial when applied to the sale of fruit in large quantities by commercial fruit growers, they would work hardship on farmers having only limited quantities to sell and who sell these in their nearby market towns as they have been in the habit of doing for years. After some discussion Hon. Mr. Crerar consented to this section being allowed to stand for further consideration. Later it was adopted. A slight change was made in Section 326.

The most important features of the new legislation are that it establishes four grades of fruit that may be sold in closed packages, including a new grade to be known as "Domestic," defines the meaning of "cull" fruit, requires the proper marking of open as well as closed packages, deals with the repacking of fruit, the sale of immature fruit and packages not properly filled, establishes standard packages and provides penalties for pilfering fruit. The provisions of the act follow closely the recommendations agreed upon at the meeting of representative fruit growers from all parts of Canada held in Ottawa in March for the express purpose of considering these matters. Their enactment will be beneficial in many ways, as they will remove difficulties that have hindered the proper enforcement of the Inspection and Sale Act for years. The Bill as enacted reads as follows:

## Bill 108.

An Act to amend the Inspection and Sale Act (Fruit, Fruit Marks and Potatoes).

His Majesty, by and with the advice and consent of the Senate and House of Commons of Canada, enacts as follows:

1. Sections 319, 320, 320A, 321, 322, 323, 329 and 332 of the Inspection and Sale Act, chapter 85 of the Revised Statutes of Canada, 1906, are repealed, and sections 325 and 326 of the said Act shall be repealed and shall cease to have any force or effect on and after the first day of June, 1919. The following sections are substituted for the said sections repealed and to be repealed respectively:

## Part IX.

### FRUIT AND FRUIT MARKS.

#### Interpretation.

"319. In this Part, unless the context otherwise requires:

(a) 'Closed package' means a box or a barrel of which the contents cannot be seen or inspected when such package is closed.

- (b) 'fruit' shall not include wild fruit, nor cranberries, whether wild or cultivated;
- (c) 'culls' means fruit that is either very small for the variety, is seriously deformed, or has fifteen per cent. or more of its surface affected by any of or by the combined injuries caused by apple scab (*venturia pomi*), insects, cuts, bruises or other causes, or the flesh of which is not in an edible condition, or the skin of which is broken so as to expose the tissue beneath.
- (d) 'Immature fruit' means fruit not ripe enough for dessert purposes and which will not attain such condition after being picked from the tree, bush, plant or vine.

#### The Marking of Fruit.

320. (1) Every person who, by himself or through the agency of another person, packs fruit in a closed package, intended for sale, shall cause the package to be marked in a plain and indelible manner in letters not less than three-quarters of an inch in length, before it is taken from the premises where it is packed:

- (a) With the words 'packed by' and with the initials of his christian names, and his full surname and address, or, in the case of a firm or corporation, with the firm or corporate name and address;
- (b) with the name of the variety or varieties; and,
- (c) with a designation of the grade of fruit which shall include one of the following four marks, viz.: No. 1, No. 2, Domestic, No. 3.

Such mark may be accompanied by any other designation of grade or brand, if that designation or brand is not inconsistent with, or marked more conspicuously than, the one of the said four marks which is used on the said package.

"(2) Every person who, by himself or through the agency of another person, repacks fruit in a closed package, intended for sale, shall cause such package to be marked before it is taken from the premises where it is repacked with the words 'Repacked by,' followed by the initials of his christian names and his full surname and address, or in the case of a firm or corporation, with the firm or corporate name and address, together with one of the four grade marks prescribed in sub-section 1 of this section in a plain and indelible manner, in letters not less than three-quarters of an inch in length.

"(3) Every person who, by himself or through the agency of another person, packs fruit in an open package, intended for sale, shall cause such package to be marked, before it is taken from the premises where it is packed, with the initials of his christian names and his full surname and address, or in the case of a firm or corporation, with the firm or corporate name and address, in a plain and indelible manner, in letters not less than one-quarter of an inch in length. Provided that any co-operative association or person dealing wholesale in fruit may cause the packages containing such fruit to be marked with his own name and address, but such packages must also be marked with a number or other mark approved by the Minister which will designate who is the original packer of such fruit.

"(4) Every person who, by himself or through the agency of another person, repacks fruit in an open package, intended for sale, shall cause such package to be marked, before it is taken from the premises where it is repacked, with the words 'Repacked by,' followed by the initials of his christian names and his full surname and address, or in the case of a firm or corporation with the firm or corporate name and address, in a plain and indelible manner, in letters not less than one-quarter of an inch in length.

#### Immature Fruit.

"(5) Every person who, by himself or through the agency of another person, packs immature peaches, plums, pears, prunes or grapes, intended for sale, shall cause such package to be marked, in a plain and indelible manner, in letters not less than three-quarters of an inch in length, with the words 'Immature fruit,' before it is taken from the premises where it is packed.

"(6) Every person who, by himself or through the agency of another person, again uses, for the sale of fruit, any package standardized in this Part, upon which appear any of the marks required by this section, shall cause such marks to be completely removed, erased or obliterated.

"320A. (1) The Governor in Council, by regulation, may:

- (a) Prescribe the kinds of imported fruit the packages containing which must be branded or marked;
- (b) prescribe the brands or marks to be used thereon;
- (c) prescribe the manner and places in and at which such fruit is to be inspected and such packages branded or marked.

"(2) All regulations made under the provisions of this section shall be published in The Canada Gazette.

"(3) All packages of fruit not branded or marked in accordance with such regulations shall be forfeited to His Majesty, and may be destroyed or otherwise disposed of as the Minister may direct.

"(4) Any person violating any regulation made under the provisions of this section shall be liable, on summary conviction, to a fine of not more than fifty dollars and costs, or, in default of payment, to imprisonment for a term not exceeding one month.

#### Closed Package Marks.

"321. (1) No person shall sell, or offer, expose or have in his possession for sale any fruit packed in a closed package, and intended for sale or in any open package and intended for sale, unless such package is marked as required by this Part.

"(2) No person shall sell, or offer, expose or have in his possession for sale, any fruit packed in a closed package upon which package is marked 'No. 1,' unless such fruit includes no culls and consists of well-grown specimens of one variety, sound, of not less than medium size and of good color for the variety, of normal shape, and not less than ninety per cent. free from scab, wormholes, bruises and other defects, and properly packed.

(Continued on page 160.)



## Potatoes Must Be Graded

At the recent session of the House of Commons legislation was adopted, on recommendation of Hon. T. A. Crerar, Dominion Minister of Agriculture, requiring that potatoes when offered for sale must be graded and defining the grades. The bill reads as follows:

(1) No person shall sell or offer for sale any potatoes represented to be of,—

(a) Number 1 quality unless such potatoes consist of specimens which are sound, of similar varietal characteristics, which are practically free from dirt, or other foreign matter, frost injury, sunburn, second growth, cuts, scab, blight, dry rot and damage caused by disease, insects, or mechanical means. The minimum diameter of potatoes of the round varieties shall be one and seven-eighths inches, and of potatoes of the long varieties one and three-fourths inches. In order to allow for variations incident to commercial grading and handling, five per centum by weight of any lot may be under the prescribed size and, in addition, three per centum by weight of any such lot may be below the remaining requirements of this grade.

(b) Number 2 quality unless such potatoes consist of specimens which are sound and practically free from dirt or other foreign matter, frost injury, sunburn, second growth, cuts, scab, blight, dry rot, and damage caused by disease, insects, or mechanical means. The minimum diameter of potatoes of the round varieties shall be one and seven-eighths inches, and of potatoes of the long varieties one and three-fourths inches. In order to allow for variations incident to

commercial grading and handling, five per centum by weight of any lot may be under the prescribed size and, in addition, three per centum by weight of any such lot may be below the remaining requirements of this grade.

(2) This section shall not apply to seed potatoes.

(3) "Practically free" means that the appearance shall not be injured to an extent readily apparent upon casual examination, and that any damage from the causes aforesaid can be removed by the ordinary processes of paring without appreciable increase in waste over that which would occur if the potato were perfect. Loss of the outer skin (epidermis) only shall not be considered as an injury to the appearance.

"Diameter" means the greatest dimension at right angles to the longitudinal axis.

(4) Every person who, by himself or through the agency of any other person, violates any of the provisions of this section shall be liable, upon summary conviction for the first offence, to a fine not exceeding twenty-five dollars and not less than ten dollars; for the second offence, to a fine not exceeding fifty dollars, and not less than twenty-five dollars; and for the third and each subsequent offence, to a fine not exceeding two hundred dollars and not less than fifty dollars, together, in all cases, with the costs of prosecution; and in default of payment of such fine and costs shall be liable to imprisonment for any term not exceeding one month, unless such fine and costs, and the costs of enforcing them, are sooner paid.

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## Important Fruit Legislation

(Continued from page 158.)

"(3) No person shall sell, or offer, expose or have in possession for sale, any fruit packed in a closed package, upon which package is marked 'No. 2,' unless such fruit includes no culls and consists of specimens of not less than nearly medium size and some color for the variety, sound, and not less than eighty-five per cent. free from scab, wormholes, bruises and other defects, and properly packed.

"(4) No person shall sell, or offer, expose or have in his possession for sale, any fruit packed in a closed package, upon which package is marked 'Domestic,' unless such fruit includes no culls and consists of fruit of not less than medium size for the variety, sound, and not less than eighty per cent. free from wormholes (but may be slightly affected with scab and other minor defects), and properly packed.

"(5) No person shall sell, or offer, expose or have in his possession for sale, any fruit packed in a closed package, upon which package is marked 'No. 3,' unless such fruit includes no culls and is properly packed.

"(6) No person shall sell, or offer, expose or have in his possession for sale, any fruit packed in any package in which the faced or shown surface gives a false representation of the contents of such package; and it shall be considered a false representation when more than ten per cent. of such fruit is smaller in size than, or inferior in grade to, or different in variety from, the faced or shown surface of such package.

"(7) No person shall sell, or offer, expose or have in his possession for sale, any fruit in any package that is so diseased, wormy or otherwise depreciated as to render it unfit for consumption.

"(8) No person shall sell, or offer, expose or have in his possession for sale, at original point of shipment, any fruit in any package unless such package is well and properly filled.

"(9) No person shall sell, or offer, expose or have in his possession for sale, any fruit in any package that has been re-packed, unless such package is well and properly filled.

### Branding.

"322. (1) Whenever any fruit in any package is found to be so packed that the faced or shown surface gives a false representation of the contents of the package, any inspector charged with the enforcement of this Part may mark the words **Over-faced** in a plain and indelible manner on the package.

"(2) Whenever any fruit packed in a closed package is found to be falsely marked, the said inspector may mark the words **Below grade** in a plain and indelible manner on the package, or he may efface such false marks and place the proper grade mark upon the package.

"(3) The inspector shall give notice, by letter or telegram, to the packer whose name is marked on the package, within twenty-four hours after he marks the words **Over-faced** or **Below grade** on the package or has reduced the grade on the package.

### Fruit Packages.

"325. On and after the first day of June, 1919, the following provisions shall come into operation:

(a) All apples packed in Canada for sale in Canada by the barrel, in closed barrels, shall be packed in good and strong barrels of seasoned wood of the following dimensions, as nearly as practicable: length of stave, twenty-eight and one-half inches; diameter of head, seventeen and one-eighth inches; distance between heads, twenty-six inches; circumference at bulge, sixty-four inches outside measurement, representing as nearly as possible seven thousand and fifty-six cubic inches.

(b) When apples, pears or quinces are sold by the barrel, as a measure of capacity, such barrel shall not be of lesser dimensions than those specified in this section.

(c) All apples packed in Canada for sale in Canada by the box, shall be packed in good strong boxes of seasoned wood, the inside dimensions of which shall be: length, eighteen inches; width, eleven and one-half inches; depth, ten and one-half inches, representing as nearly as possible two thousand one hundred and seventy-four cubic inches.

(d) When apples are packed in boxes or barrels having trays or fillers wherein it is intended to have a separate com-

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partment for each apple, the provisions of this section as to boxes and barrels shall not apply.

- (e) All apples packed in Canada for sale in Canada in crates, shall be packed in good and strong crates of seasoned wood, the inside dimensions of which shall be: length, eighteen inches; width, eleven and one-half inches; depth, ten and one-half inches, with slats at least three-quarters of an inch apart.
- (f) All pears or crab apples packed in Canada for sale in Canada by the box shall be packed in good and strong boxes of seasoned wood, the inside dimensions of which shall be: length, eighteen inches; width, eleven and one-half inches; depth, eight and one-half inches, representing as nearly as possible one thousand seven hundred and sixty cubic inches.
- (g) All peaches packed in Canada for sale in Canada by the box shall be packed in good and strong boxes of seasoned wood of one of the following dimensions, inside measurement: length, eighteen inches; width, eleven and one-half inches; and depth, either four and one-half inches, four inches or three and one-half inches.
- (h) All plums or prunes packed in Canada for sale in Canada by the box shall be packed in good and strong boxes of seasoned wood, the inside dimensions of which shall be: length, eighteen inches; width, eleven and one-half inches; depth, three and one-half inches.
- (i) All cherries packed in Canada for sale in Canada by the box shall be packed in good and strong boxes of seasoned wood, the inside dimensions of which shall be: length, eighteen inches; width, fourteen inches; depth, five and one-half inches.
- (j) All fruit packed in Canada for sale in Canada by the four-basket crate shall be packed in baskets and crates of the following dimensions, inside measurements: Baskets—seven and one-half inches by seven and one-half inches at the top, six and one-half inches by six and one-half inches at the bottom, three and three-quarters inches deep, measured perpendicularly. Crates: fifteen and three-quarters inches by fifteen and three-quarters inches by four and one-quarter inches."

#### Berries and Currants.

"326. On and after the first day of June, 1919, every box of berries or currants packed in Canada for sale in Canada, and

every berry or currant box manufactured and offered for sale in Canada, shall contain when level full as nearly as practicable one or other of the following quantities:

- (a) Four-fifths of a quart;  
 (b) one pint, and shall be four and three-eighths by four and three-eighths inches at top and bottom, and one and seven-eighths inches deep;  
 (c) two-fifths of a quart.

"(2) Every wood veneer basket of fruit packed in Canada for sale in Canada, or manufactured and offered for sale in Canada, shall contain, when level full, as nearly as practicable, one or other of the following quantities:

- (a) one bushel;  
 (b) eleven quarts, which shall be of the following dimensions and specifications, inside measurement, as nearly exactly as practicable: six inches deep perpendicularly, eighteen and one-fourth inches in length and seven and three-fourths inches in width at the top of the basket, sixteen and three-fourths inches in length and six and one-fourth inches in width at the bottom of the basket, all measurements to be inside of the veneer proper and not to include the top band. The veneer to be cut fourteen to the inch minimum; bottoms to be three-eighths inches thick, minimum; top bands to be three-fourths inches thick, minimum; top bands to be three-fourths inches in width, cut twelve to the inch minimum and secured with twelve tacks, bottom bands to be one-half inch in width, cut fourteen to the inch minimum and secured with twelve nails, all nails and tacks to be exclusive of handles, and all bands to be drawn tight so as to fit snugly over forms; the handles to be twenty-five and one-half inches in length and one and one-eighth inches in width, cut seven to the inch minimum, with one tack in each side of the handle at top band, and two nails in each end of the handle at bottom band, the handles to be outside of bands, and to be so shaped that pinching of the baskets when handles are attached will be avoided; the veneer for the covers to be not less than two inches in width and cut ten to the inch minimum and constructed in such a manner as to fit properly; the basket to be constructed over blocks measuring seventeen and three-fourths inches in length and seven and five-sixteenths inches in width at top, with a radius of one and three-fourth inches at corners. The covers and baskets to be made of



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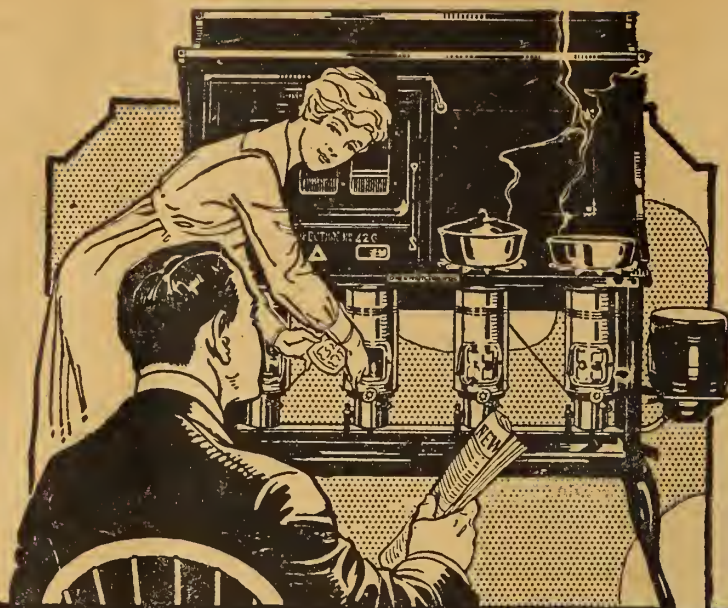
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Husbands and sons—if you had to do the cooking, wouldn't you like to do it in the most economical, most efficient, simplest way possible? Save your wife or mother further fuel worries. Buy her a New Perfection Oil Cook Stove—It will mean better cooking, a cleaner, cooler kitchen and less work for her—and for you, economy, comfort and no waiting for meals.

Select the style now that suits the individual need of your home—one, two, three and four burner sizes. Be sure it's the stove with the Long Blue Chimney—and that it has the Cabinet and the New Perfection Oven. They make the stove complete for year-round cooking service.

*Royalite Coal Oil gives best results.*

**IMPERIAL OIL LIMITED**

BRANCHES IN ALL CITIES

For sale in hardware, furniture and department stores everywhere.

## NEW PERFECTION

OIL COOK STOVE



We have a large  
stock of all sizes

### FLOWER POTS

FERN OR BULB PANS

‡ AZALEA POTS  
and Rimless Pans

Orders Filled Promptly.

Send for Prices

**THE FOSTER POTTERY CO., Ltd.**  
HAMILTON, ONT.

### PANSY "Canadian Beauties"

If you wish to enjoy Pansies of great Perfection in form, coloring and size, we offer you, under the above title a choice product. Every flower is a queen; every plant a picture to behold. It is a blending of every imaginable color and combination of color. Per packet ..... 50c

Delphinium—"Majestic Glants"  
from a choice collection of named varieties. Packet ..... 25c

WM. McSKIMMING, Pansy Specialist  
230 ELIZABETH ST., GUELPH, ONT.

sound, well-seasoned wood, free from material defects;

(c) six quarts; which shall be of the following dimensions and specifications, inside measurement, as nearly as practicable: four and one-half inches deep perpendicularly, fifteen and one-fourth inches in length and seven inches in width at the top of the basket, thirteen and one-half inches in length and five and seven-eighths inches in width at the bottom of the basket, all measurements to be inside the veneer proper and not to include the top band. The veneer to be cut sixteen to the inch minimum; bottoms to be three-eighths inches thick, minimum; top bands to be three-fourths inches in width, cut fourteen to the inch minimum and secured with twelve tacks, bottom bands to be one-half inch in width, cut fourteen to the inch minimum and secured with eight nails, all nails and tacks to be exclusive of handles, and all bands to be drawn tight so as to fit snugly over forms; the handles to be twenty-one and one-half inches in length, cut eight to the inch minimum, with one tack in each side of the handle at the top band and one nail in each end of the handle at the bottom band, the handles to be outside of bands; the veneer for the covers to be not less than two inches in width, cut ten to the inch minimum, with one tack in each side of the handle at the top band and one nail in each end of the handle at the bottom band, the handles to be outside of bands; the veneer for the covers to be not less than two inches in width, cut ten to the inch minimum and constructed in such a manner as to fit properly; the basket to be constructed over blocks measuring fourteen and three-fourths inches in length and six and five-eighths inches in width at top with a radius of one and three-fourths inches at corners. The covers and baskets to be made of sound, well-seasoned wood, free from material defects. When wire-stitching machines are used in the manufacture of these baskets, the baskets must be as securely constructed as though the above specifications as to nailing had been followed;

(d) three quarts.

"(3) Every basket of fruit packed in Canada, for sale in Canada, and every basket manufactured and offered for sale in Canada, of other material than wood veneer, shall be of such dimensions as may be specified by the Minister of Agriculture, and shall contain, when level full, as nearly as practicable, one or other of the following quantities:

- (a) eleven quarts;
- (b) six quarts.
- (c) three quarts.

Provided that the said Minister may make regulations allowing any person or persons to use packages of other sizes than those specified in the foregoing section.

#### Penalties Imposed.

"328. (1) Every person who, by himself or through the agency of any other person, violates any of the provisions of sections 320 and 321 of this Act shall be liable, upon summary conviction, for the first offence, to a fine not exceeding twenty-five dollars and not less than ten dollars; for the second offence, to a fine not exceeding fifty dollars, and not less than twenty-five dollars; and for the third and each subsequent offence, to a fine not exceeding two hun-



dred dollars and not less than fifty dollars, together, in all cases, with the costs of prosecution; and in default of payment of such fine and costs shall be liable to imprisonment for any term not exceeding one month, unless such fine and costs, and the costs of enforcing them, are sooner paid.

"(2) Whenever any such violation is with respect to a lot or shipment consisting of fifty or more closed packages, there may be imposed, in addition to any penalty provided by sub-section 1 of this section, for the first offence twenty-five cents, for the second offence fifty cents, and for the third and each subsequent offence one dollar, for each closed package in excess of fifty with respect to which such violation is committed.

"329. Every person who, not being an inspector, wilfully alters, effaces, or obliterates, wholly or partially, or causes to be altered, effaced, or obliterated, any marks on any package which has undergone inspection, shall be guilty of an offence and liable upon summary conviction to a fine not exceeding forty dollars.

"331. Every person who carelessly handles, wilfully destroys or pilfers any fruit packed in any of the packages prescribed in this Part shall be guilty of an offence and liable upon summary conviction to a penalty not exceeding twenty-five dollars.

"332. Every person who obstructs any person charged with the enforcement of this Part in entering any premises to make examination of packages of fruit as provided by this Part, or who refuses to permit the making of any such examination, shall be guilty of an offence and liable, upon summary conviction, to a fine not exceeding five hundred dollars and not less than twenty-five dollars, together with the costs of prosecution, and in default of payment of such fine and costs, shall be liable to imprisonment for any term not exceeding six months, unless such fine and costs and the costs of enforcing the same are sooner paid.

tion, and in default of payment of such fine and costs, shall be liable to imprisonment for any term not exceeding six months, unless such fine and costs and the costs of enforcing the same are sooner paid.

### A Prominent Fruit Grower

Mr. S. H. Rittenhouse, the recently elected president of the Niagara Peninsula Fruit Growers' Association for 1918, was born and brought up on his father's farm near the village of Vineland, in Lincoln county. In 1885, he started farming on his own account on his present farm, "Seestrang," about two miles from the old home farm and beautifully situated on the shores of Lake Ontario. He engaged in mixed farming until the late 90's, but with an ever-growing inclination towards fruit growing, and, following the agricultural depression of that period, he turned his attention almost exclusively to fruit. At present his chief fruit interests are peaches, of which he has about thirty acres, five acres of cherries, four acres each of strawberries and raspberries and about the same acreage annually of tomatoes.

Mr. Rittenhouse has always taken an active interest in the Institute work of the past and the Board of Agriculture of the present, being a frequent speaker at meetings throughout the province. It has been, however, first as a director of the Niagara Peninsula Fruit Growers' Association, and now as its president that he has felt most the satisfaction of sincere and constructive efforts directed towards the fruit industry, particularly of the Niagara Peninsula. Co-operation, of which he is an ardent supporter and exponent, has been the keynote of these efforts.

### The Fruit & Produce Market

The Commission firms undernoted wish consignments of fruit and general produce. They will be pleased to have you write them for information, shipping stamps, etc., if you have fruit or vegetables for sale.

### STRONACH & SONS

33 Church St., Toronto, Ont.

Wholesale Fruit, Produce and Commission Merchants.

### H. J. ASH

44-46 Church St. - Toronto, Ont.

CONSIGNMENTS OF FRUIT & VEGETABLES SOLICITED

We give personal, consistent and reliable attention to every consignment. Shipping stamps furnished on request.

### DAWSON-ELLIOTT Co.

32 West Market St., Toronto, Ont.

Wholesale Fruit and Produce. Consignments Solicited.

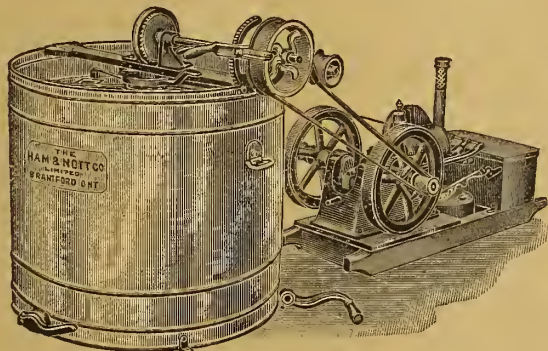
### HERBERT PETERS

88 Front St. E., Toronto, Ont.

Wholesale Fruit and Produce

See advertisement on page x.

## Power Extractors



Cut gears or friction drive, with or without engine.

If you are considering a power outfit this season it will pay you to write to us at once.

**The Ham & Nott Company, Limited**

MANUFACTURERS OF BEE-KEEPERS' SUPPLIES

Brantford, Ontario

## Prepare For The Drive

Of Work and Worry at  
Crop Time by Getting a

## GIFFORD FRUIT SIZER

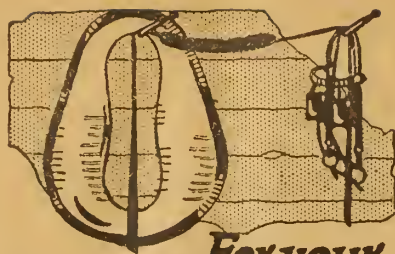
The Gifford is the only machine that will handle successfully without bruising, and size them accurately—your Peaches, Pears, Plums and Apples. It will grade your fruit so much faster than old hand methods that picking and packing will be done in time and without loss, with less help. Made to suit requirements of individual grower or large packers; compactly built, light weight, uses hand or power. Saves its price easily in few weeks. Write today for full information and booklet.

Good live men wanted throughout Canada to introduce these wonderful machines to Fruit Growers.

**R. J. LOWREY** St. Davids, Ont.

Canadian Distributor





## For your HARNESS' SAKE

Overcome the worst enemies of leather—water and dirt—by using

### EUREKA HARNESS OIL

*"Lengthens leather life"*

Softens old harness, leaves it pliable and waterproof, prevents cracking and breaking of stitches, doubles the life of new harness.

### MICA AXLE GREASE

*"Use half as much as any other"*

Gives the effect of roller bearings. The mica flakes work into the pores and crevices of the axle and the grease holds them there. Mica Grease prevents hot boxes, locked wheels and screeching axles. Saves wear and tear on horses, harness and wagons. "Best thing on Wheels."

Sold in standard sized packages by live dealers everywhere.

### IMPERIAL OIL LIMITED

BRANCHES IN  
ALL CITIES



## Fruit Packages

Have you placed your order for them yet? The fruit season will soon be here when you will need them. In order to get highest prices in the best markets, you require the

### BEST STANDARD PACKAGES

Secure these by ordering at once from

**The Hantsport Fruit Basket Co.,**

LIMITED

Hantsport, : : N.S.



## Make Every Chicken Count

The aim this year should be to make everything count. Make every hen lay her best, make every chick mature early enough and thereby make every pound of feed give the maximum returns.

When the chicks are removed to their brooding quarters there should be some coarse sand or fine grit scattered where they can have free access to it. They should be left until they show positive signs of hunger, which would be between the second and third day after hatching. They may then be given some bread crumbs that have been very slightly moistened with milk, this may be scattered on clean sand or chick grit. If being brooded by a hen, she will see that no food is allowed to lie around, but if in a brooder, that part of the food that the chicks do not pick up in a few minutes should be removed, as nothing in feeding causes so much trouble as leaving food of that nature around until it is sour.

The following daily ration of five feeds given about two hours and a half apart and continued from the time the chicks are two or three days out of the shell until ten or twelve days of age may be altered or adopted to suit conditions: First feed.—Dry bread crumbs slightly moistened with milk. Second feed.—Finely cracked mixed grains or commercial chick feed. Third feed.—Rolled oats. Fourth feed.—Dry bread crumbs moistened with milk. Fifth feed.—Finely cracked mixed grains.

In addition to the foregoing, give the chicks a little green food, such as grass, lettuce, sprouted oats, etc. Do not have the moistened bread sloppy, but in a crumbly state, and during this period let the chicks on to fresh soil or grass every day if possible.

## Natural Brooding

Brooding with the hen need not be troublesome if a limited number of chicks are required, and proper appliances are provided. When large quantities are to be raised, however, artificial means must be employed.

In taking the hens off the nests the aim is to give about 25 chicks to each hen. If more than one hen comes off at a time and there is a laying colony house available, four hens and 100 chicks can be put in one of these houses. A little opening is left for the chicks to run out when large enough and there is ample room for them to scratch on the floor on wet days. If the hens are all put in the house at the same time, there does not appear to be any serious trouble from fighting.

As soon as the hens can be removed they are put back into the laying house and the chicks are given the house for the summer. The A shaped house is also much used for the same purpose, except that but two hens and fifty chicks are put in one of these.

Small coops for individual broods are also used. These are made without bottoms and each coop should be moved the width of itself each day.

### Feeding the Chicks.

The feeding of the chicks is important. More chicks are killed from too much feed-

ing during the first two weeks than from too little feeding. Don't feed the chicks for at least 24 hours after they are put in the brooder. Dry feed will give less trouble than wet mash.

## Scaly Legs Cause Losses

Scaly leg of poultry is a common and well-known affection of chickens that sometimes causes affected birds to become worthless. It is caused by an extremely small mite that works in and under the crusts that form on the legs. Caraway or sulphur ointment will kill the pests.

Scales form at the point of invasion of the insect, and under them the skin is irritated and bloody. Badly affected birds walk with difficulty and may even lose a toe, later they become thin, lose their appetites and prove worthless. The disease is slowly contagious.

To treat scaly leg the feet and legs of affected fowls are held in warm water for several minutes, so that the crusts are softened and can be removed. A mite killer is then applied to the dry diseased surface. The Ohio Experiment Station recommends the following mixtures: (1) Oil of caraway mixed in four times as much lard or vaseline, and (2) flowers of sulphur, one dram; carbonate of potash, 20 grains; and lard or vaseline, half an ounce.

Some poultrymen have used a mixture of one part of kerosene and two parts of raw linseed oil with speedy effect. The legs of the affected fowls are dipped in this mixture, care being taken that the feathers are not wet.

## A United States Example

The Philadelphia Vacant Lots Cultivation Association has been in existence for some 22 years, during which period it has gained a wide experience in vacant lot gardening. In this connection it has published some very interesting annual reports explaining its purposes, aims and methods. It prepares the idle land which is loaned to it for cultivation by plowing and harrowing it. It then divides the land into gardens about one-sixth of an acre in size and assigns the lots to families whose applications have been received. Fertilizer and sufficient good seed to insure a successful start are furnished to the gardeners and improved methods of gardening are shown. A slight charge is made for the preparation of the land. Societies desiring suggestions in this line of work might be able to obtain some of their literature by writing to the Secretary, who, sometime since, was Jas. H. Dicks, 1122 Land Title Building, Broad and Chestnuts Sts., Philadelphia.

An unusually nicely printed book with a fancy cover entitled "Milady's House Plants," by F. E. Palmer, is a guide and instructor to success with flowers and plants in the home. It includes a chapter on the ideal sun parlor. It is beautifully illustrated, contains some 180 pages, and is well worth obtaining. It may be secured from The Canadian Horticulturist for \$1.10, including postage.



# More Winter-Killed Orchards

## Heavy Casualties Amongst The Orchard Trees This Spring

Just at a time when greater production in all directions is being urged to make up the food deficiencies of Great Britain and our Allies, the fruit growers of Ontario are viewing with deep regret the spectacle of dozens, in many cases hundreds of winter-killed trees, in their own and neighboring orchards.

The damage is extensive and is reported in all counties, and the cause is again that old "enemy alliance"

### LATE CULTIVATION Unusually Severe Winter Over-fertilizing, (in some cases)

Many growers are just getting over the last great winter killing of that of 1904-5, and as it takes a matter of 18 to 20 years to mature an apple orchard, it will be admitted that the trees are far too valuable to take any chances with.

The hope is that more and more orchardists will safeguard their orchards and not keep the trees soft right up to frost time by undue fertilizing and late cultivation.

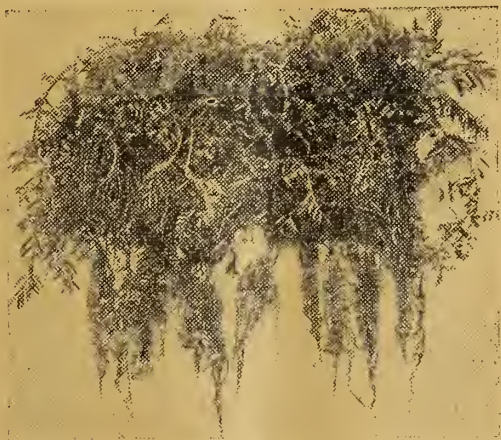
Therefore—stop orchard cultivation early. To some degree this depends upon your locality. In Eastern Ontario stop about June 1st. For the rest of Ontario make it say the middle or end of June.

For a good cover crop to take up the surplus moisture and so send all the growth into the fruit—not into the wood to leave it green for the frost—the following are regularly used: Buckwheat, Red Clover, Rye, Winter Vetch or a combination of Rye and Vetch. The following are approximately the quantities needed:

Buckwheat	-	-	1 bushel per acre
Rye	-	-	1 1/2 bushels per acre
Vetch	-	-	1/2 bushel per acre
Clover	-	-	20 lbs. per acre

For manuring—ten tons of barnyard manure to the acre, yearly, is recommended.

Insect pests will be rigorously dealt with this year by many growers so as to offset in some degree the loss by winter-killing.



Winter or Hairy Vetch—the growth from a single plant. One of the heaviest and easiest grown of cover crops. Very rich in nitrates.

For specific information upon any phase of fruit growing, manuring, cover cropping, the choice and use of insecticides, cultivating, etc., to suit your special case, you are invited to write the office of the Commissioner of Agriculture, Parliament Buildings, Toronto, giving full details and full information will be sent you.

## The Ontario Department of Agriculture

PARLIAMENT BUILDINGS, TORONTO, ONT.

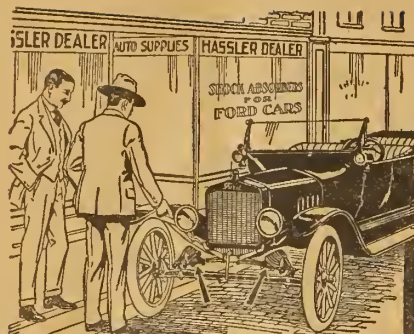
SIR WM. H. HEARST,  
Minister of Agriculture.

DR. G. C. CREELMAN,  
Commissioner of Agriculture.



ONTARIO





## Ride 10 Days at Our Expense

**F**OR ten days we want to transform your Ford into a \$2,000 car. We will do this by putting on a set of Hassler Shock Absorbers.

If you are willing, we will take them back without question when the ten days have elapsed. But you won't bring them back.

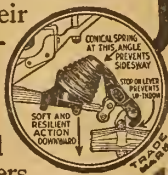


Don't take another fellow's word for it. Feel for yourself the ease and comfort, the smoothness found in a Hasslerized Ford.

Hassler Shock Absorbers pay for themselves over and over again. Reduced tire bills, more miles per gallon of gasoline, one-third up-keep cost saved—all swell the total of Hassler dividends. 300,000 Ford Owners recognize their economic necessity. Write today for Free Trial Blank, illustrated circular and opinions of users.

*Don't ride without Hasslers simply because someone discourages you from trying them. Accept this offer and see for yourself.*

**ROBERT H. HASSLER, Limited**  
Lock Drawer H.C.25 HAMILTON, ONT., CAN.



## CABBAGE PLANTS

Of all leading early and late varieties, 45c per hundred, mail prepaid; \$2.50 per thousand, express collect. Also cauliflower, brussels sprouts, celery, onion and tomato plants. Ask for price list.

### HEROLD'S FARMS

FRUITLAND "Dept. D," ONTARIO  
Niagara District.

## British Columbia

By Our B.C. Correspondent.

Growers of soft fruits in the Okanagan country are looking for record crops this season. It is believed that 1918 will witness a 25% increase in production over 1917, and there is every prospect for good prices for all that can be put on the market.

If April indications hold good, both apricots and peaches will be abundant. Apricot prices are mounting daily with the keen competition between the various buying organizations. They now call for six cents a pound, which is a record even for No. 1's. Last year's best figure was four and a half cents, and even then the growers thought the returns were exceptional, considering that in the old days they were lucky to receive two cents a pound. Peaches will bring four cents this year, as compared with three last year.

Apples will be up to the average in yield, and it is expected that prices approximating last year's will be repeated.

The continued dry weather is causing a little anxiety, although there is plenty of water coming down from the mountains. But rain would be welcome. A sharp frost recently hit the Penticton district and resulted in minor loss. Some experts fix the damage at five per cent. on the apricots and ten per cent. on the cherries, but there are other authorities who think the loss was negligible. Frost has cut down the soft fruit output of the Yakima and Wenatchee districts, in Washington State, so that the crops of the Okanagan will be doubly remunerative.

It is reported that the high prices may force the Penticton cannery to close down, in which case fruit will be shipped to Kelowna.

The Okanagan's fruit shipments, it is predicted, will fill 450 minimum freight cars this year.

Premier John Oliver has relinquished the portfolio of Agriculture, and Mr. E. D. Barrow, provincial member for Chilliwack, and a well-known farmer of that district, has been selected as Minister of Agriculture. Mr. Barrow was opposed in the by-election on May 8 by H. J. Barber, but won by a heavy majority.

The Vernon Fruit Union has decided to form a company, to be known as the Vernon Storage Co., Ltd., for the purpose of erecting a big fruit warehouse in that city. The building will be capable of storing upwards of 250 cars of fruit.

That the Fraser River delta may some day be looked upon as a prolific beet sugar producing area is proved by recent experiments. To ascertain the possibilities of the sugar beet in relieving the food situation, J. Gracey, of New Westminster, at the instance of the New Westminster Board of Trade, brought out a trial shipment of seed and distributed it among the farmers of the district. The most successful of the experimenters was Edward Burr, who lives on the Delta. His field ran thirty tons to the acre, and the beets contained 21 per cent. of sugar contents, according to analysis. This is considered a high percentage.

The Farmers' Institutes of British Columbia have been consolidated into nine district advisory boards, for the furtherance of co-operative buying and marketing with maximum efficiency. There are 148 institutes in the province, and each one will have one member accredited to one of the nine advisory boards.

W. E. Scott, Deputy Minister of Agriculture, is dangerously ill in Victoria, and it will be months before he is able to resume his active duties.

Addressing the B.C. Entomological Society, R. C. Treherne recently stated that measures for the eradication of the codling

moth in the Okanagan Valley were progressing satisfactorily. The work was being carried out by the Horticultural Branch of the Provincial Department of Agriculture and the Dominion Entomological Branch. The former controlled the work in the orchards, and the Dominion officers followed the life history in each of the sections affected, and memorialized the field officers on the development of the insect, so that control measures would be properly executed. In this way, he said, at one outbreak an infestation of from 3,000 to 5,000 larvae in 1915 had been reduced to 500. As to the wireworm pest, Mr. Treherne said that Japanese gardeners on Vancouver Island had adopted the method of catching the worms by dropping balls of rice-bran mixed with molasses between the rows of onions, and every few days the balls were dug up and destroyed, with the worms that they had attracted.

The evaporating industry is rapidly forging to the front among British Columbia's war-time enterprises. The evaporating plant of the Grahams Company, Ltd., at Marpole, is one of the latest to be established, and is already handling 30 tons of turnips and carrots daily, and employs about 70 men and girls. W. D. Elliott, a Belleville, Ont., man, has been in charge since the middle of April.

The United Farmers of British Columbia, meeting in Vernon recently, expressed astonishment at the fact that the consumers in some prairie centres are paying more than double the price for potatoes that have been received by Okanagan growers. From direct correspondence last month it was learned that a carlot of over 500 bushels shipped from Vernon was sold at \$1.40 a bushel. This is at the rate of \$46.66 per ton. The Okanagan men claim that all they got was \$19 to \$22 a ton for several cars shipped out a few weeks ago, and they are now asking where the \$24 difference has gone. The organization is investigating the case.

The Okanagan United Growers recently elected the following officers: President, Capt. J. T. Mutrie, Vernon; vice-president, E. R. Simpson, Summerland; secretary, T.

## Save Your Labor and Raise More Total Crop

**BY** using larger farm implements, more horses, more fertilizers, and by working less land.

Machinery and Horses: Acres in one day.

1-horse { corn or potato }	cultivator works 4.4
2 " " "	" " " 6.6
4 1/2-ft. mower (2 horses) cuts...	8.3
6-ft. " " "	10.2
5-ft. binder (2 horses) cuts...	7.2
6-ft. binder (3 horses) cuts...	10.4

—Cornell Agricultural Experiment Station.

### Fertilizers:

57.1 hours labor produce 1 acre of corn.
1 acre corn unfertilized (in Indiana) yielded 37 bus.
1 acre corn fertilized (in Indiana) yielded 54 bus.

This shows that:—

You can make your labor 50% more productive by properly fertilizing the crops.

You can yet add larger machinery and side-dress potatoes, root-crops and corn with fertilizers when cultivating these crops.

Write for our bulletins

**The Soil and Crop Improvement Bureau**  
of the Canadian Fertilizer Association  
1111 Temple Bldg., Toronto 11



Powell, Peachland; directors—E. Trask, Oyama; E. M. Carruthers, Kelowna; W. H. Keary and R. Arnott, Armstrong; E. W. Little, Enderby; J. Anderson and C. F. Rush, Penticton.

The British Columbia Fruit Growers' Association has decided on the following scale of prices for pickers this season: Day work—Experienced pickers to receive \$2.75 per day of nine hours, or 30 cents per hour. Inexperienced pickers to receive \$2.25 per day of nine hours, or 25 cents per hour. Piece work—Sweet cherries, per pound, 1½ cents;

sour cherries, per pound, 2 cents; peaches, per orchard box, 4 cents; prunes, per orchard box, 8 cents; all other plums, per orchard box, 10 cents; apples, per orchard box, 4 cents; pears, per orchard box, 3 cents. All pickers must give one day's notice before leaving employer or forfeit one day's pay.

The Penticton fruit cannery will soon be operating again. More peaches entered the cannery last year than any other fruit, 400 tons being treated. Apricots came next with 83 tons. Twenty tons of cherries, 15 tons

of pears, and 10 tons of plums were also handled by the plant, whose total revenue amounted to \$50,000.

## The Dominion Grant

The Dominion Department of Agriculture has issued a statement entitled Agricultural Instruction in Canada, which shows that of the \$10,000,000 voted by the Dominion Government four years ago for agricultural instruction work in the different provinces, \$3,400,000 has been expended, and how it



## IMPERIAL SERVICE

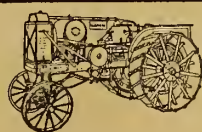
If you are in doubt about the proper lubricant, *ask the Imperial Oil man.* He will give you courteous attention and sound advice on your lubrication problems. That is part of Imperial Service.

## CALL AT HEADQUARTERS

**W**HEN you add a new machine to your farm equipment—a tractor, a stationary engine, a drill, a thresher—no matter what the machine, you need dependable lubrication advice. You want to be sure the oils you use will maintain your machine in constant service and give it long life. Look to us for the answer to your problem. We know the oil you need for each particular purpose. We know the lubrication requirements of every farm machine. Our chief interest is to do away with lubrication troubles, to make sure that you are using the correct lubricants.

All our oils are supplied in steel barrels and half-barrels—convenient, economical. No waste. You use every drop you pay for and you know every drop is uniform and clean.

## A Correct Lubricant for every Farm Machine



For Gasoline Engines,  
Tractor, Auto or  
Stationary  
**POLARINE OIL**  
**STANDARD GAS**  
**ENGINE OIL**

For Kerosene Engines,  
Tractor or Stationary  
**POLARINE OIL**  
**HEAVY**  
**IMPERIAL KERO-**  
**SENE TRACTOR**  
**OIL**  
(Recommended by Inter-  
national Harvester Co.)



For Open Bearings of  
Farm Machinery  
**PRAIRIE**  
**HARVESTER OIL**

—very heavy body,  
resists cold, won't  
thin out with  
moisture

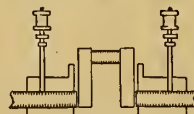
**ELDORADO**  
**CASTOR OIL**

—a thick oil for worn  
and loose bearings



For Steam Cylinder  
Lubrication, whether  
Tractor or Station-  
ary Type  
**CAPITOL**  
**CYLINDER OIL**

—the standard pro-  
duct for steam  
cylinder  
lubrication



**THRESHER**  
**HARD OIL**

For  
Grease  
Cup  
Lubri-  
cation  
of Bear-  
ings  
a clean  
solidi-  
fied oil  
high  
melting  
point



**IMPERIAL OIL**  
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**BRANCHES THROUGHOUT CANADA**



# Borrow to Buy Cattle



12

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Milk more cows—fatten more cattle—raise more hogs. If you need money to do it, come to The Merchants Bank. We are glad to assist all up-to-date farmers.

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Head Office: Montreal. **OF CANADA** Established 1864.

with its 102 Branches in Ontario, 32 Branches in Quebec, 19 Branches in Manitoba, 21 Branches in Saskatchewan, 53 Branches in Alberta, and 8 Branches in British Columbia serves Rural Canada most effectively.

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### Catalogue for 1918

Contains a complete list of a number of new plants that will interest customers this season.

A fine assortment of Paeonies. Perennial plants of all kinds. Shrubs and roses.

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Standard Fuchsias from 2 to 3 feet. Carnations of the finest varieties. Heliotrope, Cowslips, Salvia, Salpiglossis, Snapdragons, Pentstemon, Lobelias, Pansies, Ageratum, Verbenas, Asters and Stocks.

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## Northern Ontario

A vast new land of promise and freedom now open for settlement at 50c an acre in some districts—in others, Free.

Thousands of farmers are responding to the call. Here, right at the door of Southern Ontario, a home awaits you.

For information as to terms, regulations and railway rates to settlers, write to

**H. A. MACDONELL,**  
Director of Colonization,  
Parliament Bldgs., TORONTO, CAN.

**G. H. FERGUSON,**  
Minister of Lands, Forests and Mines.

has been used in each province. Ontario's share has been used in part to encourage orchard demonstrations, and in the giving of instruction in spraying, picking and packing. At the Horticultural Experiment Station at Vineland investigations in canning and the disposal of the surplus products of the orchard and garden have been conducted, and demonstrations in fruit growing in Northern Ontario were started during 1916. So far \$24,000 has been expended in this work, as well as \$5,360 for apiary inspection and instruction in beekeeping.

In Quebec the grant has provided for the establishment of a provincial fruit division, which is giving instruction in the planting and management of orchards and the maintenance of fruit experiment stations and the organization of cooperative fruit growing societies. Nova Scotia has used part of its grant to combat the San Jose scale and the browntail moth. Trained entomologists and inspectors have been sent from farm to farm giving instruction in how to identify and how to combat these and other pests. As a result, the scale has been almost eradicated, and the moth has been kept well within bounds.

## Fruit Conditions Changing

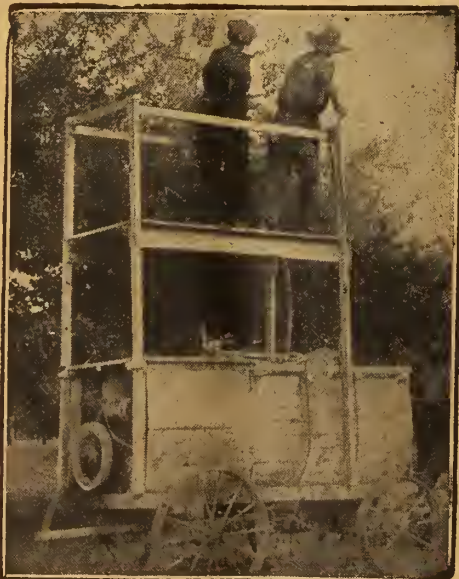
Dr. A. J. Grant, Thedford, Ontario.

FARMERS have been accused of a great many short comings, but I do not believe that we can be rightly accused of gross carelessness in connection with any paying branch of the farm. If some of us have been neglecting our orchards there must be some reason for it, and it is apparent that there are some reasons which might be threshed out to advantage. I think we will all take common ground that the production of good apples in Ontario, from this out, spells work and care in capital letters; but there is a silver lining to the cloud in the fact that the demand for really good apples was never better. I will back a good apple orchard against any other branch on the farm, when the returns are figured up at the end of the season.

It is not many years since there was a discussion on the possibility of over production. I do not think that we need waste time over this subject. Instead, we are seriously concerned about under production and will be for many years to come. If you can grow good apples and have facilities for marketing them, you can make a lot of money; but nobody ever made any money growing poor apples, or growing a low-grade of anything else for that matter. It requires considerable knowledge and intelligence to carry out a good crop rotation on any farm, and get returns for your labor, and along the same line of reasoning it requires as much, if not more, knowledge and intelligence to produce an apple crop with any degree of certainty. This can readily be acquired by the man who is interested and the sources of information are as free as water.

Theory without practice would be hopeless, but unless you have studied some well grounded theory you must fail from a practical standpoint; life is too short to grope in the dark and expect to make a success of anything. I often think that we would appreciate the services of our Agricultural College and Fruit Branch staffs to a fuller extent if we had to pay directly for them. Did you ever size up the crowd at a pruning or spraying demonstration? You will invariably find the fellow absent who is growing the poor crop of apples, and the men in the front row, thirsting for information, are usually the successful growers.

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# Niagara District Notes

By F. G. H. Pattison, Winona, Ont.

**I**N spite of occasional drawbacks in the way of cold weather, which we get more or less every season, conditions in the Niagara district this spring have been very favorable to fruit farmers. The season is far in advance of last year and is somewhat earlier than the average. On May 20th, early plums and cherries were setting; peaches, plums, pears, late cherries, and many kinds of apples were in full bloom, and the first two sprayings had been finished for some time.

As to fruit prospects. Peach trees through the Niagara district have suffered badly from the winter. Thousands of trees have died, and many of the older trees, although they have survived, have lost a good deal of their wood and their bearing capacity. At the best the outlook is for not more than 40 per cent. of a full crop of peaches. Sweet cherries have been injured to some extent, and will probably not be much better than 50 per cent. of a crop. Sour cherries, plums, and pears, however, are blooming profusely and are likely to be a good crop. It is rather early to say much about apples, but a good bloom is expected in this district. Grapes look well and have not suffered much from winter-killing, although in some places Rogers and Niagara vines have been affected. A certain proportion of plums and cherries have also been killed by the winter. In districts adjacent to the Niagara belt, such as Fonthill, for instance, much damage has been done to peach trees, most of which have been killed outright. On the mountain ridge, too, much damage has been done to the better varieties of peach trees, but early kinds seem to have escaped. Reports from

Leamington say that a great deal of damage has been done to peach trees there also. Small fruits, on the whole, look well and should give at least an average yield. Market gardens are looking well, and the weather has been, generally speaking, favorable to them. A large amount of cabbage plants have been set out recently, and some gardeners are putting out tomato plants.

Sunday, May 19th, was Blossom Sunday, and special cars were run on the Hamilton, Grimsby and Beamsville electric road. The day was very fine and warm, a temperature of over 80° having been reached, and large crowds took advantage of the occasion to see the blossoms. This is the earliest Blossom Sunday for some years.

A report from Grimsby says that Scale Inspector Olmstead is on the warpath these days, and that all condemned fruit trees and bushes in the town limits must be destroyed. Those owners who do not cut down condemned trees have them cut down for them, and the expenses charged up to them. So far, Mr. Olmstead has cut down several hundred trees, and owners themselves have cut down a large quantity. Mr. Olmstead must be congratulated on the good work he is doing. For years the village of Grimsby has been infested with scale, and trees by the score have been condemned. But that is as far as it went.

Scale Inspector Hunter, of the township of North Grimsby, says that there is 70 per cent. less San Jose Scale in that township this year than last.

A report from Grimsby East says that the fruit farmers are well on with their work. Strawberries and cherries are looking well.

Canning companies are making preparations for a greatly increased output this season. Some of the factories that have been closed for the last two or three years have been renovated and put in shape for this season's work, while a number of new factories have been erected. So large has the increase in operating plants become that the Sanitary Can Company has been taxed to provide canning machinery, and many plants that have held extra machines in case of



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## OTTAWA LADIES COLLEGE

New Fireproof Building

Academic work up to the first year University. Music, Art and Handicraft, Household Arts, Physical Culture, Etc. Ample grounds.

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emergency have been compelled to release them. Already contracts have been let in a number of lines at higher figures than formerly. Tomato contracts, for example, have ranged from 50 to 60 cents per bushel. Unless bad weather conditions prevail, there is but little likelihood of a shortage in supply. If the crop prove to be a full one, the factories will be taxed to their utmost capacity in looking after their contracts. The great difficulty facing the canners is the scarcity of labor. This is serious, and unless some way is found of relieving the situation before the opening of the packing season, some plants will have to be closed, in spite of the urgent need of all available supplies. Lower prices than last year are expected. As the high prices of the last two years were the result of a very small pack, prices may be lower and yet not affect the earnings of the canning companies, which are likely to be large.

Prof. L. Caesar, of the O.A.C., Guelph, is again residing in the Grimsby district, engaged in pruning work, experimental spraying, etc., etc.

Mr. J. R. Hastings, of Winona, a member of the Food Control Board, has written a very sensible letter to the Hamilton Spectator, pointing out that although many tons of fruit and vegetables became unfit for consumption this spring and had to be destroyed, in no case can the loss be attributed to the holding for higher prices.

Recent experiments at the Vineland Station have given results which strongly favor little or no pruning of young trees. The trees left unpruned, or only lightly pruned, grew larger trunks, bigger trees, and fruited much sooner than those pruned vigorously. Personally, the writer is of opinion that all that is necessary for the first two or three years after young fruit trees are planted is the taking out of a few cross limbs. They should, of course, be well cut back at the time of planting and the head properly shaped up. This policy may probably cause the growing of branches in undesirable places. Such branches can be cut out with a pocket knife while they are little, say in June. Pruning in that way, and at that time, will have a tendency to promote fruit bearing, while at the same time preserving the proper shape of the trees. But if this be not convenient, no harm will result from letting these undesirable branches grow for two or three years and then cutting them out gradually.

## Annapolis Valley Notes

Eunice Buchanan, Berwick, N.S.

Unlike last spring, this has been one of prolonged dryness, with high warm winds. Some days have been very hot, and occasionally a few drops of rain fell. The orchards are very heavily laden with blossoms, but this does not always result in a big crop. The Gravenstein buds showed pink on May 14. Plums and cherries opened about that date.

Spraying began here on May 13. One large orchardist said that he did not intend to spray this year, but would devote the money to putting in 150 acres of crop. Another man said that he would not spray, but has changed his mind, owing to an at-

tack of bud moth. Paste arsenate of lead, in quantity, costs 22c lb.; arsenate of lime, \$25 per 100 lbs.; bluestone, 16c to 18c lb.; stone lime, 350-lb. cask, about \$3.50.

This past winter has been hard on the finer types of roses. Even pansies suffered more than usual. Strawberries, where covered, and not on low spots, have wintered well.

Tractors have made their first appearance here this spring. One owner advertises to plow for \$3 an acre, and to harrow for \$2.

Some people have neglected the first spraying in order to put in more crop. The weather and soil have been favorable for this. Large quantities of beans are being sown.

Residents of cities who flit away during the summer months to the country, lake or sea shore and leave their lawns and gardens to take care of themselves are not in this respect at least the best type of citizen. By giving the weeds a start they make it difficult later to fully restore the appearance of their lawns and gardens, and during their absence their residences often become a public eye sore. In every city there are men and boys who would gladly look after such places during the absence of their owners, and for only a moderate charge. A proper home and civic pride would lead to the services of these men being used more freely.

## SKINNER SYSTEM OF IRRIGATION

Control complete. Prevents drought losses. Reduces labor bills. Increases profit. Special Portable Line for \$15.75. Send for new Bulletin.

The Skinner Irrigation Co.  
217 Water Street Troy, Ont.

## APPLE BARRELS

We ship them all over Ontario.  
Machine-made, Standard size.  
Get our prices.

Contracts made with Fruit Associations.

SARNIA BARREL WORKS,  
Sarnia, Ontario.

## ASTER PLANTS

Good, strong grown plants, including all the following varieties: Late Branching, Rochester, Perfection; all colors mixed, 75c per hundred.

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## TREES & SHRUBS

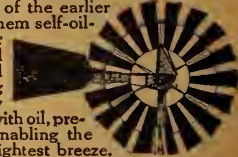
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## THE SELF-OILING WINDMILL

has become so popular in its first three years that thousands have been called for to replace, on their old towers, other makes of mills, and to replace, at small cost, the gearing of the earlier Aermotors, making them self-oiling. Its enclosed motor keeps in the oil and keeps out dust and rain. The Splash Oiling System constantly floods every bearing with oil, preventing wear and enabling the mill to pump in the lightest breeze. The oil supply is renewed once a year. Double Gears are used, each carrying half the load. We make Gasoline Engines, Pumps, Tanks, Water Supply Goods and Steel Frame Saws. Write AERMOTOR CO., 2530 Twelfth St., Chicago





## Marketing Berries

L. J. Farmer, Pulaski, N. Y.

I have seen splendid crops of small fruits grow at great expense, and then practically thrown or given away, for lack of business ability in marketing them. I used to send most everything that I raised to New York, Boston and other large cities. Now I seek the small markets, ship small lots to individuals, and encourage the local demand. The big city is the best place to secure a long price when there is a great shortage, provided your transportation facilities and your dealer are all right. I have a few picked dealers that I know to be all right, in local towns within our shipping radius, and I divide my shipments with them from day to day. In most cases, I do not know exactly what I am getting until the close of the season. It is understood between us that they are to receive my shipments, not refuse them, and they are to do the best they can for me. For their guidance, I enclose a tentative bill, but if they cannot do as well, I am to abide by what they can afford to send me.

There are always one or two pickings during the height of the season that bother the grower to dispose of at a fair price. Anticipating these days, I urge the dealers to make an especial effort to sell for canning on those days, at reduced prices. I am also accumulating a list of people in different towns and cities, who secure orders from their friends and neighbors for canning. I ship to these people on the days that otherwise would be glut days were it not for this foresight. One woman in a city of Northern New York, 35 miles from us, handled for us in one day last season, 25 crates of strawberries, supplying her neighbors with them.

Near us lives one of the most progressive, up-to-date apple growers of our county. I supply him with fresh strawberries from day to day. I am glad to get his or any other farmer's trade. It is the best trade in the world. They come after the fruit. But, do you suppose that I can buy a barrel of first-class apples for winter use from him? Not on your life. If I got down on my stomach and crawled to his place, he would not sell me anything better than windfalls. The buyer who takes all his apples might hear of it. Our locality eats culls and windfalls until the Oregon and Washington apples come in, at five cents apiece. Does it pay? I live in the center of one of the largest and richest dairy sections of New York State. They used to make all the cheese for export to England. The soft cheese used for home consumption, was made in Oneida County, and shipped in from Utica, 60 miles away. One day a local cheese maker conceived the idea of making soft cheese for the local trade. Wise man. Onondaga County is a rich dairy county, abounding with some of the finest dairies in New York State, yet the large buyers secure their supply of milk from Syracuse and from Gouverneur, and ship it via Utica, which makes a haul of 125 miles. Will the day ever come when we, who do not grow apples, can buy a few barrels of the large growers who do? Where is the Food Controller?

I have never been a great champion of the box as a package for Ontario apples. I will not say that I have changed my mind, yet it would appear that it would be advisable to use the box for a proportion of the crop. —J. G. Anderson, The McNaughton Fruit Co., Ltd., Winnipeg, Man.

## Bob Long

UNION-MADE

Overalls  
Shirts &  
Gloves

Known from  
Coast to Coast



*Bob Long says:*

"My overalls and shirts are the best made, because—I know what a man wants—long wear, solid comfort and all-round satisfaction."

Insist on "Bob Long" brand, and ask for Big 11—the big grey overalls—the cloth with the test.

R. G. LONG & CO., Limited, Toronto, Canada

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## PEERLESS GATES



Down the road or far across the fields is often an "entrance," a mere hole in the fence, a constant source of danger to stock getting through. The best way to

### Keep Your Stock Where You Want Them

is to provide real gates, strong and durable. All Peerless Farm Gates are of heavy open hearth steel wire on strong tubular steel frames electrically welded in one solid piece, and braced like a steel bridge. No sag, no rust, no wearing out. Ask your dealer to show you Peerless Gates, also Peerless Perfection Farm and Poultry fencing with the famous Peerless lock at all intersections.

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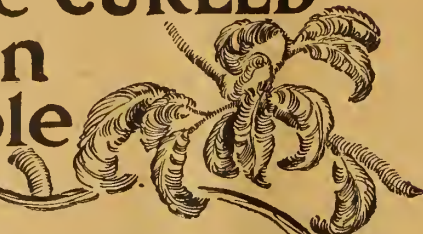
It tells you how to put up a fence to "stay put."

The Banwell-Hoxie Wire Fence Co., Ltd.  
Winnipeg, Manitoba Hamilton, Ontario





# Are there CURLED LEAVES on Your Apple Trees



Then get busy. That means Aphis—a real danger to your apple profits. Aphis cause dwarfed and deformed fruit; also spread fire-blight. Spray at once with

## Black Leaf 40

40% Nicotine

Kills Aphis

Recommended by Agricultural Colleges and Experiment Stations. Don't make the mistake of thinking that Lime-Sulphur, Arsenate of Lead and Bordeaux kill Aphis. These sprays don't, but if you are using them at this time, as you probably are, simply add "Black Leaf 40" to the mixture, per directions. You will then not only get the full benefit of these sprays, but also kill Aphis and without the labor-expense of a separate spraying.

Aphis also attacks Plum, Cherry and other fruits, as well as truck crops, vegetables, plants and flowers. "Black Leaf 40" kills all varieties of Aphis, also Pear Psylla, Red Bug, Leaf Hopper, Thrips and other soft-bodied, sucking insects.

### Free Spray Chart

Write today for Free Spray Chart, showing when and how to spray, and booklets on insect pests controlled by "Black Leaf 40."

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When you are ready to sell your honey, send us a sample. We are always buyers.

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## Items of Interest

It has been brought to the attention of the Dominion Fruit Division that fruit and vegetable growers in the vicinity of Leamington, who contracted for manure for summer movement from Toronto, were receiving cars billed at from 8½ cents to 10 cents per 100 lbs. The proper rate for this traffic to Leamington, Kingsville, and other points, via Chatham, G.T.R. and P.M., is 7 cents per 100 lbs., as provided in G.T.R. tariff, C.M. 49.

At a recent meeting of the Duncan-Nanaimo Division of the British Columbia Fruit Growers' Association, the members decided to ask the provincial government to undertake the proper organization of labor throughout the province for the duration of the war. It was reported that from 300,000 to 500,000 Chinese are now employed behind the lines in France. A resolution was passed expressing the belief that the only possible solution of the labor situation in British Columbia under existing conditions is to permit the importation of Chinese labor.

Our Fruit Growers' Association has made a practice of sending out a pruning gang every year. We have always been able to get men to work in a gang when our individual members might have difficulty in employing one man to help prune. Evidently the social element has something to do with this preference on the part of men. Our method has been to pay the wages every week from association funds and charge the amount against the grower's account, to be deducted from subsequent fruit sales. Members will have work done under these conditions when they might hesitate to face a respectable pay roll on Saturday night at a time of the year when apples are far from their thoughts.—Dr. A. J. Grant, Thedford, Ont.

Cooperative organizations should take an active part in solving problems of harvesting and labor supply. Grades and standards should be formulated if they have not already been established. Likewise a system of inspection should be decided upon in order that the products shipped will be of proper grade, quality and uniformity. Complete information relative to the local production and the amount of business available for sale through the association should be secured. Information relative to the production of other localities is also of importance. The management of co-operative marketing associations should keep in close touch with the outlets for the products handled and market conditions. Transportation problems are of prime importance and should receive attention by the Association.

## Fruit and Vegetables Solicited

### We Get Best Prices

OUR facilities enable us to realize top prices at all times for your fruit, vegetables or general produce. Aside from our large connection on the Toronto Market, we have established branch warehouses with competent men in charge at Sudbury, North Bay, Cobalt, Cochrane and Porcupine. In time of congestion on the Toronto market we have a ready outlet through these branches. We never have to sacrifice your interests.

Branch Warehouses:  
Sudbury, North Bay,  
Cobalt, Cochrane and  
Porcupine.

## H. PETERS

88 Front St. East, Toronto

References: The Canadian Bank of Commerce (Market Branch) and Commercial Agencies.



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Send for Shipping Stamp





## Transportation Problems

Geo. E. McIntosh, Traffic Expert, Dominion Fruit Division, Ottawa,

The problem before the fruit growers of the Niagara district is first to develop a product of quality, then to create a larger consumer demand, and finally to perfect as nearly as possible, the system of efficient economical distribution. This can be done, but only by putting into effect a close co-operative scheme with the railway and express companies. All losses in transit cannot be attributed to negligence of the carrier. Many are the result of conditions, the responsibility for which may be shared by the grower, the shipper and the transportation company. And while there may be, and I believe there are, grounds for complaint regarding the handling by express employees, many losses are primarily due to orchard and packing-house troubles, such as packing too loosely, severe pressing or rubbing. It is well, however, to keep in mind the fact that a well-grown, perfect fruit is a fundamental requirement in successful transportation, and while it is claimed the diseases that affect the fruit after picking cause the most serious losses in transit, the care with which it is therefore handled in the orchard or packing house is one of the important factors in determining the shipping quality.

As previously stated, it is not so much a question of rates, as it is a question of prompt, efficient service, yet rates must be

sufficiently reasonable to permit growth in consumption and development of the industry. The fifteen per cent. increase in freight service does not apply to express shipments. In looking over Government statistics filed by the different express companies, I think I am safe in saying we need not fear an application for an increase from them. The express companies in their report to the Government show a revenue from transportation, and from operation other than transportation, the latter being earnings from money orders, travellers' cheques, etc. In the report for the year ending June 30th, 1916, it is interesting to note that in nearly every case the express companies operating in Canada greatly exceeded their total operating costs by the earnings, absolutely apart from that of transportation. In this regard the Dominion had a surplus of \$356,479.79, Canadian \$315,539.68, and Canadian Northern \$508,741.92. Add to these figures the enormous earnings of nearly 7,000,000 by the and over \$1,000,000 by the Canadian North and over \$1,000,000 by the Canadian Northern for transportation, and we have some idea of the financial condition of the express companies.

The effect of the war on the farm apple orchards has been serious, but there is yet time to rejuvenate a great many of them. It is our duty as fruit growers to lead in the attempt.—Dr. A. J. Grant, Thedford, Ont.

## Keep the Potatoes Growing

Many are growing potatoes in Canada this year for the first time and as a result of the greatly increased number of growers the crop will probably be greatly increased. But to insure a good crop there must be an abundance of moisture in the soil and the tops must be protected from insects and disease.

### Cultivation.

The soil should be kept cultivated with the cultivator or hoe until the tops meet sufficiently to shade the ground. As most of the tubers develop in the three or four inches of soil nearest the surface, and as the tubers will not develop well in dry soil, quite shallow cultivation is desirable at this season of the year. In soil which is dry there may be good development of tops, but there will be few tubers. The roots in such cases have gone down deep into the soil to obtain moisture, but the tuber-bearing stems, which are quite different from the root system, do not develop well. Where the soil is a loose, sandy loam, hilling is not necessary and may be injurious, as the soil dries out more than if left on the level. In heavy soils it is desirable to hill the potatoes, as it will loosen the soil and the tubers will be more shapely than when the ground is left level. When there is sufficient rainfall and moisture in the soil, hilling is likely to give best results in all kinds of

## Beautify Your Grounds With a Permanent Frost Lawn Fence.

Our Lawn Fences are both ornamental and protective. They are perfectly woven—the spacings are always even and the uprights straight. The bowed tops are neat and firm, each upright being securely interlaced in the laterals, (see illustration). They cannot become loose and unsightly.

We weave all Frost Lawn Fence in our own mills, on power-driven automatic looms. We also apply an even, non-peeling coat of galvanizing, which gives a lasting service. **Frost Fences Are First.**

Gates, either single or double, are supplied to match the fence.

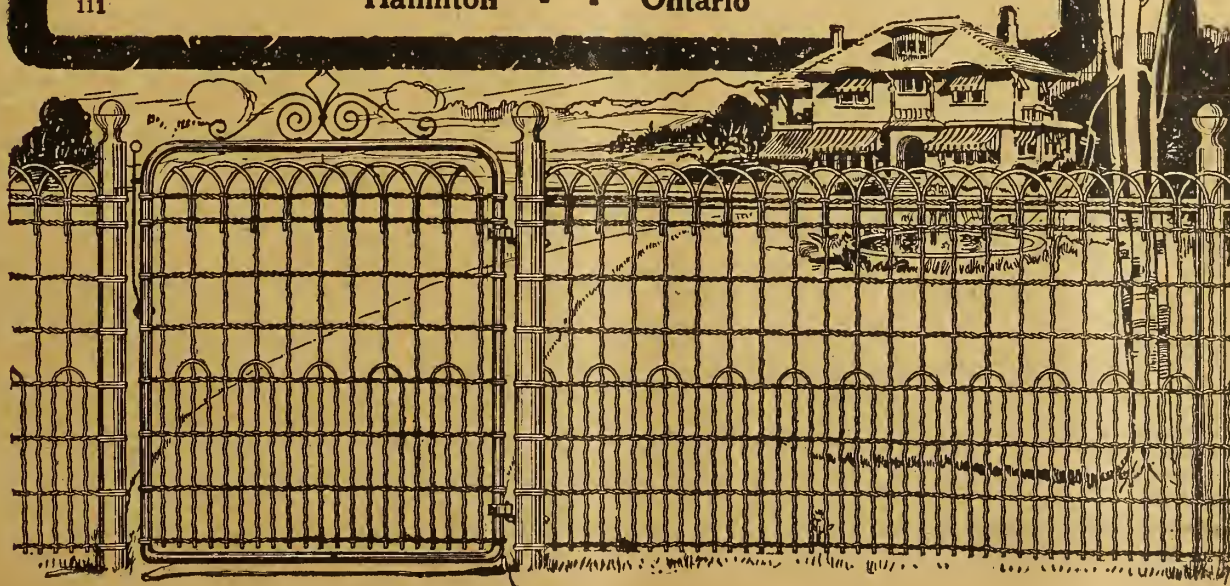
Our catalog shows several other styles of Frost Ornamental Lawn Fence. Our dealer will gladly show these to you. If you do not know the Frost dealer in your locality, write us direct.

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**Bulletins and Annual Reports**

Recent interesting bulletins and reports that have reached The Canadian Horticulturist include the following:—

"Some Observations on the Growth of Apple Trees" and "Notes on the Presence of Nitrates in Orchard Soils," are two bulletins, the first by Prof. J. H. Gourley, and the second by Prof. Gourley and Prof. V. D. Shunk, recently distributed by the New Hampshire Agricultural College, Durham, New Hampshire.

An excellent bulletin, well illustrated, entitled "The More Important Fungus and Bacterial Diseases of Vegetables in Ontario" by Professors J. E. Howitt and D. H. Jones, of the Ontario Agricultural College, is available on application to the Ontario Department of Agriculture, Toronto. Every vegetable grower should procure a copy of this valuable bulletin.

The Dominion Department of Agriculture has issued an excellent bulletin entitled: "The Potato in Canada, Its Cultivation and Varieties," by W. T. Macoun, Dominion Horticulturist. This bulletin deals with varieties, source and vitality of seed, methods of cultivation, tillage, marketing, cost of growing and similar subjects. It is a valuable addition to the literature on this subject in Canada. The bulletin contains 100 pages. A smaller popular edition has been issued comprising 16 pages.

The Entomological Branch of the Dominion Department of Agriculture is distributing circular No. 11 dealing with "The White-Marked Tussock Moth, and Its Control on Shade and Orchard Trees," by J. M. Swaine and G. E. Saunders. As this moth is wide spread throughout eastern Canada and its ravages are increasing this bulletin is timely and valuable.

Three circulars have been issued by the Illinois Agriculture Experimental Station, Urbana, Ill. One is entitled "Apple Flates," by W. P. James. It describes a new product which meets the requirements of a successful dried apple product. Circular No. 215 is entitled "The War Garden Hot Bed." The third circular, No. 20, describes methods of using farm labor advantageously during the war.

"Spraying Stone Fruits" and "Seed Sowing and Spring Transplanting in the Vegetable Garden," are two bulletins that may be obtained from the Oregon Agricultural College, Corvallis, Oregon.

The effect of poor ventilation on stored potatoes is described in Bulletin 436, of the New York Agricultural Experiment Station, Geneva, New York. Bulletin No. 437, issued by the same station, deals with "Onion Neck-Rot in Storage Houses."

Methods of combatting fire blight of the apple are described in circular No. 70, of the Wisconsin College of Agriculture, Madison, Wisconsin.

The Manitoba Horticultural and Forestry Association has issued its report for the year 1917. It includes the monthly issues of the Manitoba Horticulturist for the year. Copies may be obtained on application to Prof. F. W. Broderick, Agricultural College, Winnipeg.

**GARDEN BOOKS**

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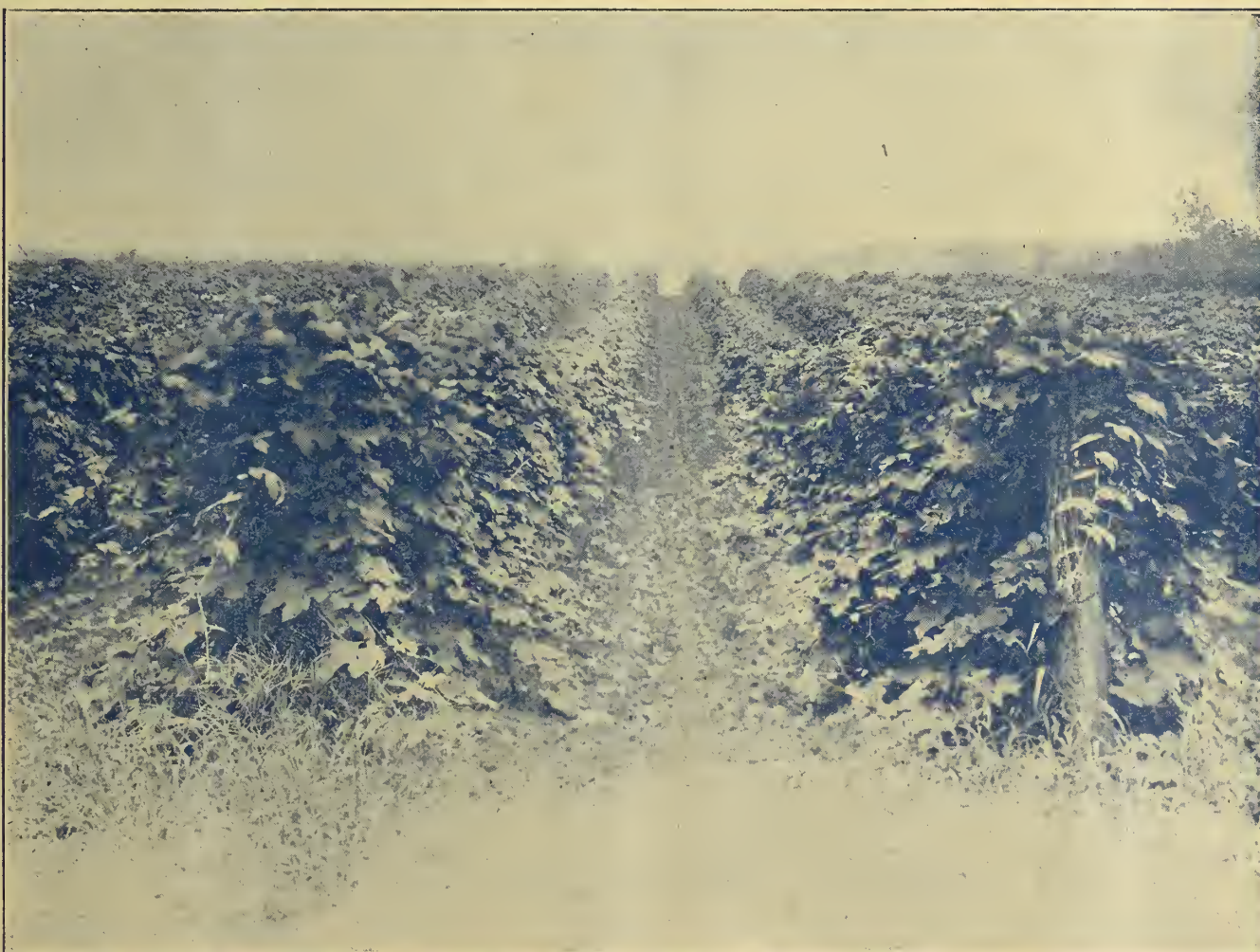


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JULY - 1918

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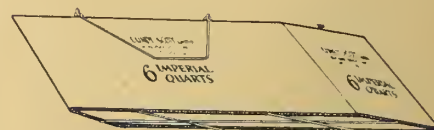
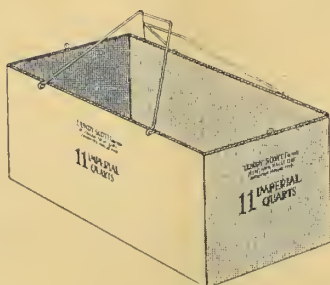


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# The Canadian Horticulturist

Fruit Edition

Vol. XLI

TORONTO, JULY, 1918

No. 7

## Strawberry Diseases

W. A. McCubbin, Field Laboratory of Plant Pathology, St. Catharines, Ont.

**I**N the following notes there are dealt with the five most prominent strawberry diseases in Ontario. It is hoped that the hints for control given may prove helpful to many whose plants are affected by one or more of these diseases.

Strawberry Mildew appears during June and early July. It is due to a fungus which grows mainly on the under sides of the leaves, and may be seen there as a white, webby or frost-like coating, usually rather scanty in amount. It causes the leaves to curl upwards, and a field which is badly affected has a peculiar whitish cast, due to this curling. Later on the lower surfaces of these curled-up leaves which are exposed to the sun are likely to turn purple or die at the edges, and when the leaves are badly attacked they may be totally destroyed. Besides reducing the feeding power of the leaves, a very serious effect of the Mildew is to allow the hot sun to penetrate through the leaves so that the fruit which ought to develop in a compara-

tively cool, shaded position is exposed to dry, hot air, which shrivels the fruit and prevents it from reaching normal size. The fungus also attacks and rots the fruit.

The Mildew is rather erratic in its occurrence. In some years it is almost absent and other years very prevalent over large areas. It develops most rapidly in warm and moist weather and will hardly spread at all when the weather is dry and hot.

### Methods of Control.

The most useful means of combatting Strawberry Mildew is in the use of ordinary sulphur, which should be applied to the rows when the first symptoms of mildew are noted. The sulphur may be applied either by using a dusting apparatus, by shaking through a fine sieve, or by putting it in a coarse cotton bag and pounding the bag as it is carried over the rows. Since it is the fumes of the sulphur, which are produced in the hot sun, which are effective against the disease, it is not neces-

sary to cover every leaf with the dust, as has to be done in spraying. One feature of this treatment should be noted: If the sulphur is applied too close to picking time the fumes are apt to be rather irritating to the pickers on a hot day.

### Leaf Spot.

The Leaf Spot disease is often very damaging to strawberry plantations where it is allowed to become prevalent. As the name indicates, spots occur in the leaf which are purple in color at first or with grey or white colored centre and a purple border as the spots get older.

Measures of control should begin when setting out the plants. Select healthy young plants and remove any spotted leaves from them. They should be sprayed with Bordeaux mixture 4-4-40 shortly after they are set out, and the leaves should be kept covered with the same mixture by two or more sprayings as needed throughout the growing season. In the second year they should be sprayed before the blossoms are out with the same material. After the fruit is picked another spraying of Bordeaux mixture may be given, or else the leaves should all be mowed after picking, and when dry burned as they lie.

### Root Rot.

During the last few years a great many strawberry plants have been lost and many plantations badly damaged by a peculiar "rot" of the roots, which is noticed during the spring and summer months. The plants which are worst affected die early in spring and others survive only till blossoming time or until the fruit is being formed, when they gradually shrivel up and die. It is suspected that the injury is mainly due to winter, although there is some evidence for believing that soil fungi may also play a part in aggravating this trouble.

It has been found that when young transplants are taken from a badly affected field early in spring they are likely to die and result in a poor stand.



Picking strawberries on the farm of Samuel Chute, South Berwick, N. S.



It is, therefore, advisable when setting out a new plantation to examine the roots carefully. The roots may be browned on the outside, but if the small cord-like centre is still white and moist they are still uninjured, but if the central cord-like part is also browned, then these roots are dead.

It is encouraging to note that several cases have been observed where plantations which were rather seriously affected one year recovered and did well during the following year.

The only control measure that seems necessary in this case is the protection of the plants from winter conditions. It is probable that the damage is done by late spring frosts after an early start of growth processes, rather than by hard or severe winter conditions. In either case, however, the remedy is a mulch of strawy manure or leaves applied in late fall.

### Fruit Rots.

The two most important rots of strawberry fruits which have been noted are the Dry Rot and Leak. Both of these occur in the strawberry regions of Ontario, in some cases to a considerable extent. The symptoms and method of control for both are clearly given in a recent article by Dr. C. L. Shear, of the Fruit Disease Investigations Branch at Washington. His statement is quoted as follows:

"The importance of the diseases of strawberry fruits is not generally recognized by growers because they rarely see the fruit at the market. These diseases are, however, of great importance, since they injure the keeping quality of the fruit and thus reduce the returns to grower, shipper and merchant, and also increase the cost of the berries to the consumer. No plant diseases cause more serious losses than those which decay the ripe fruits and thus destroy food which has been produced at great expense and labor. A careful study of the diseases of strawberry fruits carried on by the Office of Fruit Disease Investigations during the past three years has shown that the two most important diseases may be very largely reduced by means which are within the reach of every grower.

### Dry Rot.

"Dry Rot, caused by a grey mold (*Botrytis* sp.), is a field trouble and is particularly common and destructive on fields which are unusually wet either from excessive rains or because of poor drainage. This disease is readily recognized by the fact that the berries become rather firm and somewhat discolored. Berries of any age, whether green or ripe, may be attacked on the vines, and frequently the grey, powdery mold is seen growing on the outside of the

berry. Not only berries, but at times leaf stems and blossoms, are attacked by this fungus.

"While the grey mold fungus grows rather slowly on ripe berries, and so is not of great importance after picking, it may become very conspicuous, due to its ability to grow at the temperature of a refrigerator car. This characteristic enables it to develop on the top of the load, so that it is very noticeable when the car reaches the market and is being examined by buyers, a fact which frequently results in serious reduction in price.

"The only effective method of reducing the spread of this disease in the field is by proper drainage. Dry Rot can be and should be largely eliminated as a cause of loss after picking by proper sorting. Diseased berries should be thrown out by the pickers or packers.

### Leak.

"Leak, caused by the common black mold (*Rhizopus nigricans*), is by far the most common and most destructive disease of ripe strawberry fruits. It is characterized by a rapid softening of the berry and the escape of much juice. This characteristic makes it particularly conspicuous on the market, where boxes and even crates are badly stained, giving them a most unattractive appearance. Moreover, the fruit soon settles in the basket or box and is unsaleable except at a great reduction.

"Study of this disease has shown that black mold can enter strawberries only when they are injured; thus one sure method of reducing loss is to handle berries carefully, so that they may be injured as little as possible. Black mold grows very slowly if at all below 50 degrees Fahrenheit, but very rapidly as the temperature rises above this point. Strawberries should therefore be kept as cool as possible.

"One simple method of keeping down the temperature of strawberries, and one which is available to every grower, is to pick the berries as early as possible in the day, before they have been warmed up by the sun's heat. This should be done even if the berries are wet, as experiments have shown that it is much better to pick berries cool and wet than to wait until they are dry and warm. In any case strawberries should be placed in the shade as soon as picked and protected from the sun by a light cloth while being hauled to the station. Dark, heavy canvas or oilcloth retains the heat and hastens the decay of the fruit.

"In some sections of Florida certain growers regularly practise washing the strawberries before they are picked. In case this method is followed strawberries should be packed wet rather than



Spraying Celery.

allowed to dry, even in the shade, as experiments have shown conclusively that this drying greatly increases the amount of rot."

**Brown Rot of Peach.**—An examination of peach orchards this last season in Wayne County, N.Y., at the time when early varieties of peaches were beginning to ripen, showed excellent results from dusting for brown rot. Untreated orchards had sometimes as much as 25% of rotted fruit even before picking began, while the same varieties in dusted varieties showed scarcely a rotten fruit. In most seasons the dusting of early varieties, like the Carmen and the Rochester, will be profitable. — Prof. H. H. Whetzel, Ithaca, N. Y.

Sod fruit has a much better color than any other. After that comes the mulch, and after that the tillage, and then the tillage and cover crop. Where a definite mulch is used the mulch fruit will be in general as large, if not slightly larger, than the other fruit.

Don't neglect the celery. It is now ready for blanching, and the quality, when you come to eat it, depends entirely on how you handle it now. Blanch by all means, either by earthing, boards or brown paper.

Cultivation of the soil in the autumn preparatory to spring planting is advantageous: it makes earlier planting possible, and leaves the soil in good condition for the roots of the young trees.



# Suggestions on Potato Growing

Austin Richardson, O.A.C., Guelph, Ont.

**T**HE potato seems to offer much room for improvement in yield. I propose to suggest a few ideas as to the increasing of yield by seed selection.

If you observe any given number of hills of potatoes being taken up you will invariably find that a large percentage of them are not uniform in their yield. That is to say, there will be a large difference between the yield of each hill. I would like to suggest one or two reasons for this variation. The first being due to the general custom of selecting the seed from a bulk of potatoes, regardless of the kind of a hill they came from, and not choosing any of uniform size, often choosing the very smallest. In many cases small potatoes come from hills that have had no marketable potatoes in the hill, and the choice of small potatoes for seed should be avoided on that account amongst others, as it is a form of degeneracy. It has been my experience that if the potatoes for seed are chosen in this way from a crop that has not been uniform in yield, the resulting crop has not been uniform.

Experiments have been carried out (O. A. C., Guelph) that seem to prove that each part of the potato yields differently. That is to say, the top or eye part has a different yield to both the middle and stem end, and the middle part to each of the others. This being the case, it is only natural to suppose that if a potato is cut up with each cut piece coming from a different part of the potato, and planted, that the yield would not be either uniform or the best that could be attained as the opportunity allowed. It is commonly conceded that like begets like to a certain extent, therefore to plant potatoes from an irregular crop and cut potatoes in an irregular way one should expect an irregular crop, and it is only using common sense to say an irregular crop is not the best yield that might have been produced. Now as a suggestion to the removing of the first fault, would it not be wiser to select your seed from the best hills, making a standard of say six marketable potatoes, of good shape and as uniform as possible to a hill; any hill with less than six marketable tubers to be passed by. The standard could be made higher than six if the crop allowed, selecting, of course, good shaped potatoes. My experience has been that if this plan is carried out that the yield is greater and more uniform.

As to cutting, first of all the potatoes should be of good shape. Discard all potatoes that have a tendency to go

to a point. Invariably the more pointed the potatoes are the more eyes there are crowded on that point. This, I suggest, is a type of deformity and weakness. As a crude explanation, I offer as the cause of the many eyes, to be the fear of the potato, which, knowing its weakness, makes a supreme effort to reproduce itself by supplying many eyes. With this idea in mind, such potatoes should be avoided as seed potatoes. Choose instead a potato that carries its shape or thickness right through from stem to eye. The eye end should be as broad as the stem end in the case of a long potato, or shorter potato. If other shapes they should be even all around, the main idea being to have the eye end as broad as the shape will allow. With potatoes of this type there are generally fewer eyes, and these eyes are stronger, more healthy and vigorous.

In cutting see that the potato is cut in such a way that each cut piece is approximately the same size and shape and comes from approximately the same part of the potato. The way to get this is to quarter it, starting from the eye and cutting straight down to the stem. If the potato is a healthy one and of good shape there will be approximately the same number of eyes on each piece, and each piece will be of about the same weight and shape. No potato less than marketable size should be planted, and each potato would have four pieces. Cutting in this uniform way, the hills would be more likely to produce alike, and with a high standard of selection, which should be increased when possible, the yield would soon be greater and more uniform.

## Selecting Seed Potatoes.

In buying potatoes for seed care

should be taken to see that the potato comes from a cooler class of land to that in which you intend to plant. I do not think it wise to buy potato seed that has been grown in very poor soil. If you buy seed from the north it would not be much of a change if seed came from soil similar to that intended to be planted. From experience I would suggest that the seed be chosen from soil that is cooler than your own, providing, of course, the term "wet" could not be applicable to your own. The seed from a cooler soil is generally of stronger vitality.

Care should be taken that in cultivating the yield is not spoiled by cultivating at a wrong time, or not cultivating enough at the right time. The right time is up to, approximately, seven weeks after planting, and as much as possible before planting, the potato being a plant that requires a very loose or friable soil. The soil should be all turned over at the time of planting and as little as possible left trodden over.

Dibbling, that is, making a hole and dropping the potato in it, is not a good way to plant. If planted this way the soil should be exceedingly friable, as the least degree of solidity of soil is detrimental to the potato, and dibbling favors this because it can be done with the least cultivation, and cultivation is what the potato requires; also generally the soil is left trodden over.

The potato should be cultivated as much as possible up to a certain stage; after that stage it should be left entirely alone. The stage where it should be left alone is when in cultivating between the rows you disturb small fibrous roots that look like small white threads. If you cut or break off these fibrous roots you stop the root growth, which interferes very considerably with the yield, as the potato plant is of very quick growth. The least interference with its root system is detrimental.



This crop of Irish Cobbler potatoes produced from New Brunswick seed, the first year grown in Ontario, produced 484 bushels to the acre in the vegetable garden of Mr. J. A. Williams, Peterboro', Ontario.



Many have had experience of what damage is done by frost that has come a week or so before the haulm is fully grown. The same applies to the root system, with the exception that the root system is only partly injured by cultivation, but the nearer the cultivation to the row after the stage mentioned has arrived the more the damage, also the oftener cultivated after this stage (to a certain extent) the more the yield is decreased up to the stage that root growth ceases.

With reference to this, I quote from the *Gardener's Chronicle*, April 27th, 1918, taken from an article from the *Journal of the Department of Agriculture*, Victoria, Australia. Their object was to ascertain the rate at which the plant absorbs food from the soil, etc. In order to obtain this knowledge, the authors made complete analysis of set, haulm, root and tuber at four stages of the life history of the potato, roughly at the end of the 1st, 2nd, 3rd and 4th month of growth. From these analysis the point of interest is that 41 per cent. of the total growth is completed in the first month. In the second month the plant makes 52 per cent. of its root growth, and at the end of that period root growth is practically completed. During these two periods the haulm makes 22.5 of its total growth in the first month and 49.8 per cent. during the second. In the third month the roots practically cease to grow, but the haulm makes 27.7 per cent., practically finishing its growth. From this it is easy to see what damage could be done by interfering with root or haulm growth at any stage.

The article also points out that any food substances should be available from the start, if these are to aid root growth, owing to the limited time.

#### Northern Grown Seed.

Lately it has been found out that seed potatoes brought from northern parts of Ontario and other northern places give a larger yield, so that the argument may be raised of what avail would it be to spend time and care in selecting your own seed, if it is shown that the yield can be increased by importing certain northern seed. As a suggestion I should like to say that if good seed was obtained by care and selection that it would be wise to find a reliable grower in the north; send him some of the selected seed to grow for your use the following season. Or he could grow it for two seasons; by this means a system of exchange could be made, and the result of care and selection would not only not be lost, but the vitality would be increased. It should not be difficult to find a reliable grower who would be pleased to do business in this way. The English and Scotch

growers are particular about the soil the seed has grown in being cooler than that in which they intend to plant it. The more northern the climate and cooler the soil the slower the potato would grow, and generally the slower formation of seed, providing it is healthy, the better vitality. I would not choose a hot, dry, sandy soil from the north, if my own was of that nature, as the change would not be likely to be of much difference.

Some diseases are first transmitted from the haulm to the tuber. These diseases can be eradicated by taking up the potato before the haulm has died. If this is done the disease will not be transmitted to the tubers, as the disease does not go into the tuber until the haulm is almost dead. The tuber, or potato, does not suffer in any respect to be used as seed if this is done.

#### Renewing the Strawberry Bed

One question frequently asked is: "How long may a bed of strawberries be profitably kept?" This question is incapable of a general answer. There are a number of factors which affect the answer, such as stand, freedom from disease, presence or absence of weeds or grass, variety and the relation of the bed to the rest of the farm operations. Commercial growers usually fruit a bed for one or two seasons and then plow it up, because usually by this time the grass and weeds have gotten such a hold that it is easier to plant a new bed than to clean up the old one. When the weeds are kept out, the fertility kept up and diseases

do not appear a bed may be kept for several years, especially for home use. The size of the berries, even under the most favorable conditions, will diminish after the second year. With varieties like Dunlap, Warfield and Bederwood, which produce large crops of medium sized fruit, a bed would become commercially unprofitable sooner than other varieties which are not so inclined to overbear. Plants grown under hill culture are frequently grown more than two years, and those varieties adapted to hill culture are the ones which, under the matted row system, will prove best adapted to a longer fruiting period than two years.

In case it is decided to leave a bed for another season, it should be mowed after fruiting and the leaves either burned or raked off. Burning is risky and should be undertaken only when there is plenty of moisture in the ground and just enough mulch left to enable the fire to run. When this is done, a brisk wind will speed the fire quickly across the field without allowing it to linger long enough to cause injury. In case the leaves are not burned they should be raked off, together with the surplus mulch. After burning and raking, the middles are then plowed and worked down, the weeds and grass removed from the rows, fertilizer applied between the rows and the bed given the same treatment as a newly set bed.

Arsenate of lime is of some value as a fungicide when used alone. Whether it adds to the value of lime-sulphur as a fungicide is not known.



Picking Peaches in the Niagara District. Peaches in this district this year are not likely to be more than 25 percent. of an average crop.



# A Strawberry Section With a Future

The B.C. Correspondent of The Canadian Horticulturist

**A**LTHOUGH it comprises barely 120 acres, nestled away in the sunny southeastern corner of Vancouver Island, Gordon Head is still western Canada's chief source of strawberry supply. Not only do the forty odd growers, owners of this tiny parcel of heavy production acreage, supply the home market and the nearby regions with luscious berries three months in the year, but the Gordon Head berry has now established a reputation of its own as far east as Manitoba.

This is only the fourth year that the Gordon Head product has figured on British Columbia's export list. Before that, the farmers were content to grow sufficient berries to meet the Victoria demand with a small surplus for Vancouver. Year after year they grew their crops, and with encouraging results, but it was not until the co-operation germ got busy in 1914 that real expansion began.

The Gordon Head growers banded themselves together in a co-operative association and the South Saanich growers soon followed their example, with the result that the two organizations, working together, have put their respective districts more on the map of Canada in the last three years than in fifty years previous, for it was 'way back in the fifties that the Hudson Bay Company first recognized the agricultural possibilities of the Saanich Peninsula.

In 1915, the export trade in strawberries to the prairies was more of an experiment than anything else. Four cars were shipped east of the Rockies, but the results were so good that acreage was increased substantially and a bigger portion of the crop was sent out of the province, eleven cars in all being sent out in 1916. Last year the shipment totalled twenty-two cars, and in addition Vancouver took 2,800 crates and Victoria 4,500 crates. Eight hundred and sixteen crates make up a full carload.

Gordon Head and Saanich growers are looking forward with confidence to the day when Southern Vancouver Island will become known as the leading strawberry centre on the continent. And there is sound basis for such hopes, because it has been proven by test that the berries grown in their locality will ship greater distances without spoiling than those from any other section in Canada. They say it is the climate that makes this possible, and Victoria is supposed to have the most equable climate in Canada. Saanich and Gordon Head, it might be

mentioned, are hardly more than suburbs of Victoria, for only four or five miles separate them.

## The Difficulties.

Now, what are these difficulties we spoke about? In the first place, the labor shortage is just as acute on the Pacific coast as in any other section of the Dominion, and as an example of the way farm wages have been skyrocketing, it may be cited that last year the Chinese employed on the berry fields of Saanich and Gordon Head got an average of \$1.50 a day, whereas \$2.50 a day must be paid this year. Then there has been a fifty per cent. increase in the price of wooden crates. Barnyard manure is used as the principal fertilizer, but the supply is so small and the price so high this year that farmers have been casting about frantically for a substitute. They are using tankage and whale guano, but only in an experimental way. It is claimed that the price of fertilizer, speaking in a general way, has gone up at least 100 per cent. since last season.

When the picking period arrives the labor problem generally is most serious, but the growers have to some extent found a way to solve it by the employment of young women and girls from the city. The plan was tried out last year and the farmers all claim it was 100 per cent. successful. The Chinese will do the rough work, the cultivation and straw packing, but the army of girls must be depended on to gather the crop.

The girls got 35 cents a crate with a five cent bonus last year. The record pick was ten crates in a day during the peak of the season. The girl that did that was getting a \$4 a day wage, which is not too bad. But the growers are convinced that the pickers earned their money last year, and this year they purposed putting up the wages somewhat. The volunteer pickers were registered by the Victoria Y.W.C.A. This year they were marshalled by the Provincial Department of Labor, although the old plan worked out smoothly. After giving them a thorough tryout, most of the growers contend that the average girl is the equal, if not superior, to any Chinaman when it comes to work among the strawberries.

Last year's crop was valued at approximately \$100,000, so production per acre comes close to \$100, on an average basis. To improve conditions, the two associations have got together in an attempt to eliminate brokerage fees by doing all the selling and distributing themselves. To further this object Mr. McNaughton, James Grant, provincial markets commissioner, and R. M. Winslow, former provincial horticulturist, and now connected with the Mutual Growers, of Vancouver, all practical berry experts, made an early visit to the principal market centres in Manitoba and Saskatchewan, and arranged with wholesalers to take the whole crop at \$3.50 per crate delivered.

Alberta is skipped by the Vancouver Island shipments, that market being



Irrigation is transforming vast areas of dry land in Southern Alberta into productive garden and farm land. These tomatoes were grown on the Dominion Experimental Farm at Lethbridge, Alberta, which was visited last summer by an editor of The Canadian Horticulturist, who was most favorably impressed by the splendid crops of fruits and vegetables he found being produced.





This represents the tenth crop grown on a Wealthy apple tree 13 years old, owned by Jay E. Allis, of Medina, N.Y., a speaker at the last convention of the Niagara Peninsula Fruit Growers' Association. Very little pruning was done when the tree was young, and the ground was never seeded. The only fertilizer used was barnyard manure.

left to the British Columbia mainland berry centres. The Island produce is firmer and ships better than the mainland stuff. Creston, in the Crow's Nest Pass district, will ship about 12,000 crates by local express into southern

Alberta, and the Japanese growers of Haney-Hammong have entered the export field for the first time and will probably send 5,000 crates out of the province. Mission, Erickson, Creston and Mission will also ship part of their output.

## Orchard Cover Crops

THE main uses of cover crops in orchards are: to hold the snow in winter, and thus afford greater protection to the roots of trees; to prevent the thawing and freezing of the ground; to lessen the depth to which the frost will go in the soil; to furnish vegetable matter in the spring for the purpose of obtaining humus and nitrogen; and to act as a catch-crop in autumn to prevent the leaching of plant food made available during the summer. The cover crop is also a means of reducing the moisture in the soil by transpiration, and thus aid in ripening the wood of fruit trees liable to be injured. Where the soil has been long cultivated, and needs additional plant food, especially nitrogen, leguminous plants, such as clovers and vetches, which will take free nitrogen from the air, and thus add a large quantity of this useful and expensive fertilizer to the soil at slight cost, are usually best; while where the soil has not been long under cultivation and is well supplied with humus and nitrogen, a non-leguminous plant, such as rape or buck-

wheat, may be better, as the holding of snow and the protection of the roots of the trees are then more important than adding fertility to the soil, especially where the snowfall is light.

In the colder parts of Canada, where there is usually plenty of moisture in summer, it is better to sow seed for the cover crop in the first half of July or even in late June, rather than in the second half of July, as it is important to have the wood of trees thoroughly ripened before winter sets in, and by sowing the seed early the growth of the tree should be aided in ripening by the drying of the soil caused by the transpiration of moisture from the growing cover crop. In the dryer and milder parts of Canada it is not necessary to sow seed for the cover crop until about the middle of July, as the early ripening of the wood is not so important as the conserving of moisture in the soil by cultivation through the early part of the summer. No nurse crop is, as a rule, necessary. Some of the desirable characteristics of a good plant for cover crops are,

first that it will germinate quickly and grow rapidly, so that weeds will be checked. It should be a strong grower, as there should be a dense cover to prevent the frost from penetrating deeply into the ground. It should stand fairly erect, so that it will hold the snow well in winter. It should also be a plant which can be easily handled in the orchard. In districts where there is danger of making the soil too dry by late growth, a cover crop should be chosen which will be killed by early frost, such as buckwheat. Some of the best plants for cover crops are: Mammoth red clover, common red clover, crimson clover, hairy vetch, summer vetch, buckwheat and rape. The last has been found very useful on the prairies for holding snow. Where weeds are not liable to spread into adjacent areas and cause extra labor they make a fair cover crop if allowed to grow up after the end of June.

## Cucumber Mosaic

The attention of cucumber growers is directed to a disease that seriously affects the yield of cucumbers, by the pathological service of the Dominion Experimental Farms. This service maintains field stations in several districts, so chosen as to afford facilities for the observation of particular crops and for experimental work in combating their special diseases.

The Mosaic disease of cucumbers is not well known in Ontario gardens, but of late it has begun to appear more frequently, and growers should be on the watch for it. Recent investigations indicate that there are three types or kinds of Mosaic to be met with on cucumber, of which one is very damaging. This is the White Pickle Mosaic, which greatly dwarfs the plants and causes the fruit to grow in a lumpy, mis-shapen condition. The distortion in the fruit is due to irregular growth. Certain areas become sickly, assume a light yellow or nearly white color, and grow very poorly. The remainder of the surface is normal, retains its dark green color, and grows much faster, thus producing distorted leaves or lumpy fruit.

In the other two types the leaves are the parts most affected. In one of these types the leaves are mottled with lighter, yellowish green areas and the plant is weakened and dwarfed, thus reducing the yield. The Mottled Leaf Mosaic is not so damaging as the White Pickle type. The third type is known as the Speckled Leaf Mosaic, and while the leaves become spotted with sickly areas, as the name indicates, this form of the disease is not considered to be very damaging.



# Co-operative Canning for the Red Cross

P. E. Culverhouse, Horticultural Expert, Station Vineland, Ont.

**T**O the women of Ontario must be given the credit for originating one of the most effective means for canning foods for the military hospitals at home and abroad. Individual effort cannot be praised too highly. Now is a time when the ingenuity and thrift of every maker of meals will lend aid to our nation. Everyone should know how simple it is to convert all the odds and ends of perishable foods into the appetizing and staple canned article.

But another opportunity has often gone by ungrasped. The commercial canning plant has its place, and annually rolls up a gigantic yield of foods upon which people have come to rely more and more. Commercial drying is another industry filling its proper niche in the organization of our country. What we have so far lacked, however, is a community canning kitchen so equipped that it will have the efficiency of a factory and be easy of access for every woman in the town or countryside.

The community canning kitchen is not a new idea. Other countries have used it before us. It is the special form which the canning kitchen has taken in Ontario that is to be credited to the women of Ontario.

The basic organization upon which the canning centre is built is the Women's Institute. Here we have a network covering the whole Province, especially the rural districts. The Women's Institutes, because they are all amalgamated and in close touch with the central office of the Ontario Government, are all readily reached. The organization is permanent.

Let us consider, then, how a canning centre may be started in any community. The local branch of the Women's Institute interests its neighbors in the proposal. The members are told that the Government is willing to install all of the equipment if they can furnish a suitable building with water supply and drainage. It is pointed out that by having a kitchen with steam supply, copper kettles, vats, pulping machine, sealing machine for tin cans, sink, and many other appliances canning becomes a simple, speedy and efficient operation. It has been found that when an institute undertakes the work and describes the advantages to its neighbors, unlimited support is given. The whole county bends its energies towards raising funds and sending all kinds of fruits, vegetables, and even chickens into the canning kitchen.

The most remarkable feature of

the organization is its close contact with the Canadian Red Cross Society. The latter has come forward with the offer to supply tin cans, labels, cases, sugar, kegs for pickles, and spices for all products prepared for the Red Cross.

During the past two months the writer has had the opportunity of visiting many places in Ontario in order to explain the nature of and means of obtaining a canning centre. It, of course, has also been necessary to investigate the buildings and the probable supply of perishable foods in the district. Nowhere has the plan received anything but the most enthusiastic support. The only thing that has prevented many localities from entering upon the work is the lack of proper accommodation, and sometimes water supply. Fortunately, there will be during the 1918 season possibly six centres. When it is considered that at Parkhill alone, where in 1917 the first canning kitchen was established, it is expected that 10,000 chickens will be canned this year, it will be realized how important the results obtained will be.

Although the community canning centre is a war measure, being an important means of conserving food that would otherwise go to waste, it will have its uses in times of peace. For the present, however, the women of Ontario think more of Red Cross

work. They do not care so much whether the food canned is for themselves. This will be an important thought in times of peace. Groups of women from all over a county can come to the kitchen from time to time throughout the season and preserve their entire supply. But now all energies are bent towards putting up as much as possible to ship to the military hospitals. Women come to the kitchen day after day looking forward to this opportunity of doing something for the people of Europe. And this is a service for the people of Europe, because every pound of food that is prepared in our canning kitchens and sent across to the hospitals leaves so many pounds more available for the people of the war-ridden countries. The producers of the foods have responded loyally to the call. Gardeners in the small towns and farmers out in the country have all given generously, and will give generously during the season ahead of us.

The war, with the necessities which it has brought upon us has forced us into new methods. This new movement of co-operative canning for the Red Cross and for the home is one of the results of the war. The advantages which it gives over individual effort are now realized, and will bring a permanent change in the methods of food preserving for home use.



A beauty spot in the garden of Swinton King, Dundas, Ont.





Planting squash seeds among the early cabbages for a second crop off the land.

## The Tarnished Plant Bug

Many an amateur gardener has had reason to regret the presence in his garden of the tarnished plant bug. It belongs to the species of insects which are provided with sucking and not biting mouth parts. Unlike many insects which are prevalent during only a portion of the season, its presence may be detected throughout the summer, not only on all kinds of plants, but also on foliage, and sometimes on the leaves of young fruit trees. Its practice is to suck the juices of the flower buds and foliage, thus decreasing their vitality, thereby causing much damage when left unmolested.

It is not hard to discover these insects when one knows what to look for and where. When full grown they have a triangular head, prominent eyes, are oblong in form, and about a quarter of an inch in length. The color varies, but generally is



Tarnished Plant Bug.  
Fully eight times its natural size.

greyish-brown, with yellow and black dashes marked as shown in the accompanying illustration on this page. It is none too easy to catch them, as they are active, and seek safety at any sign of danger. Frequently they do this by dodging around to the other side of the plant.

The best method of combatting them, as is true of all sucking insects, is by spraying them with a strong kerosene emulsion. As this spray cannot be used safely on tender flowering plants, the best remedy in such a case is found in the application of pyrethrum insect powder. If you are an early riser, as most garden lovers are, you may capture many of these little pests by knocking them off with a stick into a receptacle containing water having a coating of coal oil on the surface. The application of these remedies will do much to rid your garden of this pest.

I am enclosing herewith one dollar to renew my subscription to The Canadian Horticulturist for three years. I find it very interesting and useful.—  
Ludger Lemieux, Montreal, Que.

## The Amateur Vegetable Garden

A. H. MacLennan, Vegetable Specialist,  
Department Agriculture, Toronto.

During July keep the cultivator going. The dust mulch in the garden is one of the most valuable aids in the successful growing of vegetables. Many diseases are indirectly caused by lack of this, the plants becoming weak and lacking in vitality. Plants kept steadily growing will be ready for use much earlier, and give the higher quality which should be the aim of the gardener.

Spray whenever necessary. Do not allow disease or insect pests to get a firm hold on the plants. Many gardens are of little value because care is not taken to get rid of them as quickly as they appear. Send for Bulletin No. 251. This will aid you.

Keep down weeds. This is done by careful cultivation. Weeds, allowed to grow, take much food and water from the soil, and if allowed to go to seed will soon infest the whole place.

Fertilize the asparagus bed. Do not leave it till fall. If you cannot get manure, use commercial fertilizer at the rate of 500 to 800 pounds an acre. From now till fall is the period in which the plants store up their food for next year's growth, so be liberal in fertilizing.

Plant your late cabbage and cauliflower as soon as possible. Use water in setting them, so that they will get a good start. Late carrots or beets may also be planted now, as well as lettuce.

Mulch around your tomato and celery plants with coarse manure, about four inches thick. It will help pro-

duction. If you are growing your tomatoes on stakes, keep them pruned. As the fruits begin to ripen, keep the lower leaves cut off.

## Grading and Packing Vegetables

No one can tell a grower whether a given practice will be profitable for him or not. However, one idea that is commonly held is usually wrong, that is, that it does not pay to grade and pack carefully when vegetables are cheap. In times of over-supply, it becomes a question whether produce can be moved at all or not. The grower with attractive goods is able to make sales when the neighbor leaves his crop in the field. It is true that it costs money to put produce up in good shape, but this difficulty has been met by many growers by studying their operations with the idea of achieving greater efficiency. Many workers are exceptionally slow in bunching, tying, sorting and the like. Such workers should be taught to make better speed or should be put at some other task for which they are better adapted. Young people with nimble fingers can frequently be used to good advantage in this work. There are cases on record where tomatoes have been graded and packed in a packing shed at a lower cost than others would expend for packing directly into market baskets. In these operations piece work offers a splendid incentive.

Perhaps it will be advisable for you to build a concrete cellar for storage. The methods for this are quite simple, and products are accessible at all times. Be sure to make ample provision for ventilation at both top and bottom; otherwise you cannot secure circulation of air.



# Cutworms and Their Control\*

Arthur Gibson, Entomological Division, Ottawa

**I**NJURIOUS insects wage a heavy toll on fruit growers and gardeners. The annual loss from such pests amounts to many millions of dollars. Among the destructive insects the cutworms are insidious enemies which necessitate prompt warfare if we would save the enormous quantity of food-producing plants which they destroy every year. In general, cutworms are similar in appearance, being smooth, cylindrical caterpillars, about one inch or more in length, and in color of some dull shade similar to the ground, in which they hide during the day.

In fields or gardens where such plants as cabbages, cauliflowers, tomatoes, etc., are set out, protection against cutworm attack can be had by placing a band of tin or wrapping a piece of paper around the stem of each plant at the time of setting out. Tin, of course, lasts longer than paper and is, therefore, to be preferred. Pieces about 6 inches long and 2½ inches wide are sufficiently large for this purpose, and can easily be made into a cylindrical shape by bending them around a broom handle. Old tomato or other tins in which canned vegetables have been prepared are useful for this purpose, and if thrown into a bonfire the tops and bottoms fall off, leaving the central piece of tin, which, if cut down the middle, will be sufficient for protecting two plants. When paper is used, cut this into pieces about three inches square. The pieces may be threaded on to a loop of string, which may be tied to the box in which plants, such as cabbage and cauliflower, are taken to the field. About two inches of the paper should be left above ground.

## Remedial Measures.

The poisoned-bran remedy is the one which is now used most extensively for the destruction of cutworms generally. This is made as follows:

Bran . . . . . 20 pounds  
Molasses . . . . . 1 quart  
Paris green, or white arsenic. ½ pound  
Water . . . . . 2 or 2½ gallons

Mix the bran and Paris green (or white arsenic) thoroughly in a wash tub, while dry. Dissolve the molasses in the water and wet the bran and poison with the same, stirring well so as to dampen the bran thoroughly.

Shorts or middlings in place of bran are also useful for cutworm control.

A simple formula for small gardens is one quart of bran, one teaspoonful of Paris green, and one tablespoonful

of molasses, with sufficient water to moisten the bran.

The mixture should be applied thinly as soon as cutworm injury is noticed. It is important, too, that the mixture be scattered after sundown, so that it will be in the very best condition when the cutworms come out to feed at night. This material is very attractive to them, and when they crawl about in search of food they will eat it in preference to the growing vegetation. If the mixture is put out during a warm day it soon becomes dry, and is not, of course, as attractive to the cutworms. In treating fields of hoed crops, such as beets, turnips, etc., a simple method is to have a sack filled with the bran hung around the neck, and by walking between two rows, and using both hands, the mixture may be scattered along the row on either side. When cutworms are so numerous as to assume the walking habit the poisoned bran may be spread just ahead of their line of march. In gardens, where vegetables or flowering plants are to be protected, a small quantity of the material may be put around, but not touching, each plant. Fruit trees may be protected from climbing cutworms in the same way, but the mixture should, of course, not be thrown in quantity against the base of the tree, otherwise injury may result from the possible burning effect of the Paris green.

## Succeeding in Tomato Culture

A. V. Main, Ottawa.

"How do you trim tomatoes?" "What is it you cut out?" These questions are often asked. Aim to have one stem grow up the stake, what might be called a leader as we see them in young trees. At the axils of the leaves small shoots grow out. If all these are allowed to grow the plant becomes choked with shoots. Every week, as the plant grows taller, tie it to the stake or move up the last tie if you can and break off these small shoots. Sufficient fruit will come without these shoots being allowed to grow out. The fruit comes out in a bunch form from the stem between the leaves.

Study your plants and learn their ways. This method of culture is partly artificial. The natural method permits a large number of shoots to grow out in all directions. The fruit grows on the ground and does not ripen very well. It becomes muddy and insects get at the fruit. The plants also take up more space. In the small garden the use of stakes is best. If the plants show dense foliage, the leaves should



Sunrise tomatoes as grown in a Niagara District greenhouse are shown. These are an excellent greenhouse variety.

have the tips cut off, say a quarter of a leaf. Rich soil, partly shaded or kept very wet will produce rank growth and not so much fruit. Do not water often unless you have a dry, hot soil. From the last week of July, when the fruit is getting large, to the end of the season, apply plenty of water.

## Encourage Good Growth.

Commencing about the middle of July I use all my lawn mowings between the plants. It keeps the soil from drying out, produces cleaner fruit and is nicer for picking. Few plants respond so quickly to liquid manures. Liquid cow manure is not easy to procure, but is about the best. The month of August is the time for applying doses, twice weekly. It increases the weight of the fruit immensely. Nitrate of soda is convenient for the city resident. Give half a handful to three gallons of water. This should water four plants if poured in around the roots. Keep it off the leaves. Cultivation with the Dutch hoe is kept up until we start mulching with the lawn mowings.

I am unable to deal with tomato insects or diseases outdoors, as in my experience I have not had any to contend with.

Do not allow the fruit to ripen on the plant. Pick it when it is just turning color. This relieves the plant and offers no temptations for thieves in vacant lot gardens. At that stage the growth of the fruit has been completed and it ripens more quickly when off the plant. Place the fruit on a cool shelf or in a refrigerator, not in the sun. The Peach tomato keeps the longest when rolled up in paper and placed in a cool cupboard. It can be kept until within a few days of Christmas.

\*Extract from bulletin of Dominion Entomological Division.



# The Canadian Horticulturist

COMBINED WITH

## THE CANADIAN HORTICULTURIST AND BEEKEEPER

with which has been incorporated  
The Canadian Bee Journal.

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The Only Magazines In Their Field In the  
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Official Organs of the Ontario Fruit  
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1. The Canadian Horticulturist is published in  
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**FRUIT EDITION:** This edition is devoted  
entirely to the interests of the commercial fruit  
and vegetable growers of Canada.

**FLORAL EDITION:** This edition is devoted  
to the interests of amateur fruit, flower and  
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Communications should be addressed

THE CANADIAN HORTICULTURIST,  
PETERBORO, ONT.

## EDITORIAL

### The Fruit Industry

A few years ago considerable time was  
occupied at most fruit growers' conventions  
in discussing the problem of what was to  
be done with all the fruit that was likely  
to be placed on the market within a few  
years when the tens of thousands of young  
orchards that had been planted throughout  
Canada and in the Pacific Coast States came  
into bearing. While there were some opti-  
mists who failed to be alarmed at the pic-  
tures then drawn, there were many who  
were very apprehensive concerning the pos-  
sibility of obtaining profitable returns from  
their orchards during the period then not  
far ahead.

How great has been the change since  
those days! The war, of course, was not  
expected, and its results, therefore, could  
not have been anticipated. Neither was it  
known that for four years in succession  
thousands of fruit growers in Ontario, for  
one cause or another, would obtain little or  
no returns from their orchards. The em-  
bargo on fruit and the advice given by  
Government officials to farmers who have  
orchards to sacrifice their orchards rather  
than their general farm operations owing  
to the labor shortage, is resulting in such  
a deterioration of orchards that all fear of  
the glut in the fruit markets that was an-  
ticipated appears to have been pretty effec-  
tively removed. That this is the case is fur-  
ther assured by the fact that during the de-  
pression that existed a few years ago in the  
Pacific Coast States thousands of acres of  
orchard lands were converted into field  
crops.

The past winter, it is now known, proved  
a hard one on many of the orchards in On-  
tario. Large numbers of trees of varieties  
never before affected by the cold were de-  
stroyed. The winter proved a severe test  
of the hardiness of many varieties of apples.  
Some varieties hitherto considered immune  
to the cold proved susceptible last winter.  
While this may seem like a poor time to  
advise anyone to undertake fruit-growing,  
it is the very time when, if past experience  
counts for anything, wide-awake fruit-  
growers who are in a position to do so will  
be planning to extend their orchard plant-  
ing. As a general rule it is when many  
men are giving up the business that wise  
men enter it in order that they may reap  
the benefit of the change in conditions that  
soon may naturally be expected.

It seems altogether likely that within a  
few years there will be a shortage, not a  
surplus, of fruit. The men who maintain  
their orchards now in good condition, and  
even extend their planting, will be ready for  
the shortage and high prices when the time  
arrives. A careful examination of the vari-  
eties that have survived the past winter  
should prove a valuable planting guide.  
Just now, also, as we have pointed out  
frequently before, appears to be a favorable  
time for the purchase of nursery stock, be-  
cause as yet, probably owing in part to the  
conditions described, there has not been any  
general advance in the prices of such stock,  
quotations on the whole not being much  
above those which prevailed in 1914. With-  
in another year this condition is likely to  
change. The shortage of labor is the chief  
difficulty with most growers. However,  
after the war there is almost certain to be  
a great decrease in the number of farm

orchards, and an increase in the number of  
commercial orchards. Now, therefore, is an  
excellent time to plan for the future.

### Birds Now Protected

Fruit growers and gardeners who have  
realized the value of the presence in their  
orchards and gardens of almost all varieties  
of birds will rejoice in the knowledge that  
recent Dominion legislation makes it illegal  
for boys or anyone, for that matter, to rob  
birds' nests for egg collection purposes.  
The new regulations provide for the pro-  
tection of migratory game birds, migratory  
insectivorous and migratory non-game birds  
which inhabit Canada during the whole or  
any part of the year.

The new legislation is the result of re-  
commendations made by the Migratory  
Birds' Convention to both the United States  
and Canadian Governments, and which have  
been adopted by both. The killing, captur-  
ing, injuring or molesting of insectivorous  
birds, their eggs or nests, is prohibited  
throughout the year. These birds include  
robins, woodpeckers, wrens, meadow larks,  
humming birds, thrushes, and "all other  
perching birds which feed entirely or chiefly  
on insects." While many fruit-growers  
doubtless will feel that they would not miss  
the presence of robins, blackbirds, and one  
or two other birds of the same kind, the new  
regulations should on the whole prove help-  
ful to the fruit industry, and tend to check,  
to some extent at least, the rapid spread of  
numerous pests in the orchard, and possibly  
the advent of new ones.

### Plant Roadside Spaces

In these days, when the wonderful pro-  
gress of mankind is being proclaimed on  
every side there are not wanting many  
causes for humility, if we will but recognize  
them. The statement is credited to Dr. J.  
H. Kellogg that "the planting of nut trees  
along all the public highways of the country  
would, in less than twenty years, result in  
a crop the food value of which would be  
greater than is at present produced by the  
entire live stock industry of the country."  
A little thought will show such a statement  
to be well founded. In the light of it, when  
we read and know that the world is facing  
a famine, and that already over four mil-  
lion people have starved to death since the  
outbreak of the war, it may well lead us to  
feel humble when we think of how short-  
sighted our policy in matters of this kind  
has been.

The planting of roadside trees would not  
only serve to provide food where nut or  
fruit trees were planted, but would also  
beautify many a barren-looking country  
roadside. Not only are we not doing this,  
but we find that the Hydro, the telephone,  
and other linemen are destroying many of  
the few trees there are by butchering them  
in order that they may string their wires  
to better advantage. Action should be taken  
with the least possible delay to prevent  
destruction of this character and to promote  
the planting of more trees. Municipalities  
might well consider the advisability of offer-  
ing small bonuses for the planting of certain  
varieties of trees.

### Marketing Problems

Now that the season for marketing fruit  
is once more at hand we are certain to hear  
the cry raised again that the middlemen are  
reaping too large a profit on the fruit they  
handle. Although the regulations of the  
Food Controller do not seem to leave much  
margin for excessive profits, there is certain  
to be this year, as in the past, a wide mar-



gin between the prices paid the producer and those paid by the consumer in practically all our large marketing centres.

Although they are not commonly understood, the reasons for this spread are numerous. Some of them might be remedied comparatively easily, while others are far more difficult to control. A few of the more common causes include losses from decay, fluctuations in prices, the heavy expense per unit for goods passing through the marketing process, and the inefficient methods and dishonest business practices of some middlemen. A large percentage of the goods bought from farmers never reaches the consumer because of decay which develops in transit. It has been estimated by investigators that from thirty to forty per cent. of the margin between farm prices and retail prices of the goods which pass through the middlemen system is due to great losses from decay. As this loss must be met, it is added to the prices of the goods which do not decay. No one can blame the middleman for protecting himself in this way.

Frequently middlemen suffer losses through prices declining after they have purchased their supplies. This leads most middlemen, but more particularly the retailers, to endeavor to charge enough for the goods they handle to offset possible or actual losses from this cause. For the same reason they will refuse to buy the goods unless they can get them at a price low enough to make them feel safe when purchasing them. While undoubtedly some middlemen at times have fleeced both producers and consumers, the number of cases of this kind is far smaller than is generally supposed. A knowledge of the other man's problems often reveals the fact that more can be said on his side than we have been inclined to suppose.

## California Rose Won French Prize

The gold medal of the Grand Prix of the French rose world has been awarded this year to a California rose. The annual rose competition was held on Sunday, June 16 in the city of Paris rose gardens at Bagatelle. A special cable to the Toronto Globe comments on the event as follows:

"In spite of the Gotha raids, the bombardment by 'big Bertha,' and the battle raging less than 50 miles away, the judging was witnessed by 35,000 people. No better reply could be given the fantastic statements in the German papers, which assert that Paris has been deserted by its inhabitants in panic-stricken flight. The Bagatelle rose competition is open to all growers of the allied countries, and the medal is awarded for the best new rose of the year. Sunday's winner, which is a Californian product named Los Angeles, is a daughter of the Lion Rose, and one bearing the name of the well-known actress of the Comedie Francaise, Madame Segond Weber."

You are all familiar with that time worn bit of advice that we like to give to the boy who is standing on the threshold of life—"There is always room at the top." This applies to apples as well as everything else. First-class apples, properly packed will always sell well; the poor ones have a right to go begging for a market.—Dr. A. J. Grant, Thedford, Ont.

Now in regard to The Horticulturist, I find The Canadian Horticulturist educational and interesting.—Arnott M. Patterson, Humberside Ave., Toronto.

## : SOCIETY NOTES :

### Ontario Rose Society Exhibition

On July 23 the Rose Society of Ontario provided a Rose Show in Toronto. The exhibits were varied and beautiful and many visitors showed their appreciation of the devotion of the members of the society that made such an exhibition possible. There were two long tables covered with every variety of roses, new and old, to the number of about 300; smaller tables where art and taste had ample opportunity to express themselves and baskets of roses that were a joy to behold.

The prize for the best rose in the show was won by Hon. Fred. Nicholls for a beautiful "G. C. Waud." A small table of hybrid teas, with sprays of climbing adiantum ferns, for the most beautiful table arrangement of roses, was won by Mrs. G. G. Adams. The second prize went to Mrs. W. H. B. Aikins, for a table comprising vases of hybrid teas and rambling roses, with one large centre bowl and four smaller ones. The flowers were interspersed with greenhouse adiantum ferns and made a most effective combination. Mrs. D. S. Stayner was awarded the third prize for a table of hybrid teas and vases of the same kind of roses. This was also a very beautiful table. Mrs. W. B. Raymond's table did not get a prize, but her table was most tastefully arranged with hybrid teas, chiefly pink.

#### Prizes Were Awarded.

The first prize for the baskets was won by Mrs. G. G. Adams, who had many beautiful exhibits in the show, and consisted of pink hybrid teas, very simply and beautifully arranged. The second prize went to Mrs. A. B. Patterson for a basket of red and pink hybrid teas with the handle intertwined with asparagus plumosus and pink climbing roses. Mrs. Aubrey Heward took

the third prize for a basket of red hybrid teas.

The exhibits of the hybrid perpetuals and hybrid teas on the benches were very beautiful, and the judges had considerable difficulty in awarding the prizes. This responsible work fell to Messrs. G. Baldwin, F.R.H.S.; T. Manton, W. Davidson, F. E. Buck, Ottawa; H. J. Moore, Niagara Falls; Miss Yates, Port Credit; Mrs. Dunington-Grubb, and Mrs. R. B. M. Potts, Hamilton.

This year there were a great many more amateur exhibitors than formerly, which was a pleasing feature of the exhibition to the promoters. The roses were auctioned off at the close of the show and the proceeds of the auction, as well as the sales in the afternoon, and half the door proceeds, were given to the Women's Association for the Welfare of the Blind.

### St. Thomas

On account of the peculiar season this year which was not conducive to the production of good tulip bloom the annual May festival of the society was called off. This was all the more to be regretted as a great many entries from other societies had been made. To offset this somewhat a small educational show was held for three days in the windows of the J. A. Gould Co.

Exhibits were sent from the president's garden to the Kingsville Society's Tulip Show, to London and Ingersoll.

The peony beds at Pinafore Park, containing over 150 varieties, which were donated to the park by the Horticultural Society, were a wonderful sight, and hundreds from St. Thomas and nearby towns visited the park to see them when in bloom. The iris collection of 100 varieties was also greatly admired, and called forth many expressions of favorable comment.



The Windsor Horticultural Society has improved the bare spaces on corners at street intersections by the planting of flower beds here shown. The work was much appreciated by the public.



## Fruit Farmers Who Use Big-Business Tools

By Chilton Gano

SOME years ago the farmers of the Northwest apple-growing States of the Union systematized the production, grading and packing of their fruit, and are to-day commandeering the services of the country's greatest business-building machine to help them sell their fruit at the best prices.

The business-building tool or system referred to is Advertising. Advertising is not often thought of as a machine or system, but nevertheless, the advertising mediums of the world, used on a large scale, constitute nothing else than a huge machine whose wheels may be set turning in the service of any legitimate enterprise which will pay the necessary price.

The first farmers to commandeer the services of advertising on a national scale were the orange growers of Southern California. In the past few years the Sunkist campaign has reached the status of an established success, and has led some other organizations of fruit-growers to follow the lead. It is of the Northwestern Fruit Exchange, which a little more than a year ago began the first national advertising campaign on trade-named apples, that, as the nursery rhyme has it, "I'm a-going for to speak." It is believed the story will interest Canadian apple-growers, who have been to some extent apple advertisers themselves since the Fall of 1914.

Under the heading, "Skookum in 1916-17," Manager W. F. Gwin, of the Northwestern Fruit Exchange, recently wrote a series of letters to the several thousand farmer-members of the Exchange, telling the intimate, detailed story of the first year's experience in advertising Skookum Apples to a hundred million Americans. These letters are much too long and detailed to be reprinted here, but they give a veracious story, being in a sense the official report of a public servant to his constituency. Springing from such a source, what the writer shall say of Skookum advertising may be considered absolutely authentic.

The national campaign on Skookum was not altogether an experiment. It had been preceded by a two-year campaign in a single city, New York. \$15,000 had been spent for advertising the brand in New York, using mainly cards in the street cars. Only the extra-fancy grade of fruit was packed under the Skookum label, and only the eight varieties of apples considered the best were eligible. This first Skookum advertising was highly interesting, because it did more than show attractive pictures of good apples and claim quality. It told people things about apples they had never known before. It told which varieties were best in the different seasons, how certain varieties deteriorate in storage, which varieties are best for different culinary purposes, new ways to serve apples, etc. Long before the two years were completed Skookum Apples brought the highest prices obtainable on the New York market, were known by name to all New York, and were being featured regularly by leading grocery stores, big hotels and restaurants, etc., in their advertising and on their menus.

The national campaign, which was begun in September, 1916, with attractive advertisements in national magazines, became merely an elaboration of the New York policies, as they had proved their merit. Four varieties were added, making twelve Skookum varieties, a new and more elaborate recipe booklet was prepared, showing each variety in color, new incidental pub-

licity items were developed, for instance, Skookum apple balloons, made in Japan. The Skookum trade-mark was also adopted at this time. "Skookum" is a Chinook Indian word meaning "Fine," "Great," "Bully." The trade-mark consists of the face of a smiling Indian Imp. It appears on the tissue-paper wrappers of the fruit, the box labels, and in all publicity matter.

Mr. Gwin's account of the launching of this first national apple campaign is full of human interest, and may well be quoted here, in part:—

"As we got down to the actual engineering of the 1916 campaign in the weeks preceding the actual launching of our plans, I found I had never been so busy in my life. The main steps in these plans were already marked out before the Skookum Packers Association members voted that resolution for a national advertising campaign appropriation for Skookum apples, but the details required the closest attention, and I made up my mind that we would consider every view-point, investigate every suggestion, and finally eliminate until we had left only what was safe and good. I realized that this Skookum fund must make and would make Northwest apples known in every corner of America, to be demanded by millions of consumers, and it must be handled with the utmost care and skill.

"I should tell you that during those weeks of planning the best experts in advertising in the United States called at the Exchange offices, including even special representatives of the great Curtis organization; the discussions with these experts were invaluable. Meanwhile, the tentative advertising ideas were being worked out, and subjected to review and criticism both in ideas for advertising text, the medium of its placing, and the pictorial matter. Before the final trade mark of Skookum, the Indian maiden face of the covetous and merry smile, was accepted, it is no exaggeration to say that fifty sketches by leading artists of New York were submitted, and the trade-mark as it stands to-day is a composite of a number of these sketches, and is acclaimed the equal, if not the superior, of any national or world advertising character or figure.

"Knowing that our advertising would cause a profound demand for Skookum, what to do now to reap all possible profit for the growers? The f.o.b. sales system to wholesalers exactly dovetailed in with an advertising sales campaign. We knew that advertising would sell Skookums by carloads in 1916 where a North-west apple had never been seen in previous years. That meant some big things to the growers. We argued: Skookum will take hold of the progressive wholesaler; he will want it, and he will push it; it is a safe quality, an advertised, splendid apple that he should have—so Skookum in 1916 will have a wide distribution that is the cream. In plain words, Skookum would have the pick of the 1916 demand.

"The Exchange intimated to the growers that everything else being normal, there was a prospect, under our plan, of placing a good part of the crop while the apples were still on the trees. With this in view we prepared a portfolio to show to wholesalers showing sketches of full-page and other advertisements of Skookum which it was proposed to publish in the Saturday Evening Post, Ladies' Home Journal, Good Housekeeping, Literary Digest, Life, Sunset Magazine, etc., etc. The portfolio also showed

sketches of Skookum colored cards to appear in street cars, and the pictures of the Skookum wrappers, the apple novelty balloon, pictures of the Skookum mats to hang in stores, and other helps to retailers to sell their stock of Skookums; also a description of the Skookum recipe book. In fact, this portfolio was a prospectus of the Skookum campaign.

"With this portfolio, then, and with the plans and appeal of the Skookum campaign well in hand, representatives of the Exchange started out early in June to make a personal canvass of a large number of the wholesale and retail dealers. Our representatives in some instances were invited to address the retailers' association as a body. Willingness to co-operate and assist in the marketing of the Skookum crop was freely expressed. In fact it became so that the trade anxiously awaited the appearance of the first advertising and the appearance of the first car of Skookum. A number of merchants carefully formulated their plan in advance, and before this preliminary canvass was completed several hundred cars of Skookum apples had been booked at open prices, which prices were to be agreed upon before the fruit was ready for harvest.

"I don't want to give a too gushing impression of this success. There are always squareheads and soreheads and those who hang back, and there is always opposition anywhere you go and to anything you do. We all know that—at least, those of us who have a gray hair or a furrow or two beginning to show. But nevertheless we met principally with an unstinted welcome."

\$60,000 was expended in the first year's national campaign. For a national campaign this fund was comparatively small, and there is hardly a question that it secured results beyond what might fairly have been expected. It secured the recognition of the new brand by wholesale and retail trade throughout the country, impressed the message of Skookum quality upon the consumer, causing a quite active demand, and easily provided for the ready sale of the Exchange's entire supply of extra-fancy apples.

The Exchange has been actively preparing to increase its output of extra-fancy fruit, to meet a bigger demand this year, and has increased its advertising appropriation. In short, the indications are that Skookum has become a fixture in the fruit markets of the country, and that Skookum advertising, like Sunkist, will show growth with every year.

## Good Work by Toronto V.L.C.A.

The superintendent of the Toronto Vacant Lots Cultivation Association, Mr. Geo. Baldwin, F.R.H.S., announced recently that they had approaching 1,750 vacant lots under cultivation. The movement in Toronto started in 1914, when seventy-five vacant lots were put under cultivation. In 1915, there were 120, and, in 1917, 826. The Association prepares the land, and charges the cultivator \$2 for seed. This year 150 soldiers and soldiers' wives, who get everything free, are cultivating lots. According to Mr. Baldwin, the yield of the lots averaged last year about \$40 each, although several had yielded products the actual value of which reached \$130. Many women are cultivating gardens, as are members of church associations and pupils of schools. The staffs of the hospitals are bending their energies to the raising of vegetables for the consumption required at those institutions. Members of the West End Young Men's Christian Association have fifty acres under cultivation.



## Annapolis Valley Notes

Eunice Buchanan.

Apple estimates vary from 300,000 to 400,000 barrels. Most of the fruit seems to be of the early varieties. Some orchards have a good set, but in many the yield will be poor. In our vicinity the apple blossoms were good, and much earlier than last year, but on going farther afield we find that blooms were not so abundant. There was not much blossom on the Kings, and this fruit will be scarce. Late varieties, such as Ben Davis and Stark, are very much off. Spys have set well. Gravensteins have a fairly good crop. There are no pears to speak of, and the sweet cherries are thin. Sour cherries will yield better. There are a few peaches on the home trees.

Owing to lack of labor, many people have not sprayed their orchards. Canker worms are doing much damage on Berwick (town) orchards. Spot was noticed on foliage as early as June 16th.

Latterly we have been having some heavy showers and cool weather. This will help the strawberries, which were not injured here by June frost. (Reports of frost come from other districts.) The hay crop will be light. Garden seeds germinated slowly. Winter killing of small branches is quite noticeable in many orchards.

Supplementary.—To-day, June 21st, there was a disastrous frost here. Beans, tomatoes, corn, potatoes, and other tender things have in some fields and gardens been completely destroyed. On high ground the crops escaped. The worst of it is that this frost has come when plants were well grown, and in many instances the season is too far advanced to re-sow seed. Yesterday was cold, with a north wind. At 11.30 a.m. we had a severe hailstorm, which lasted for about twenty minutes, and then finished as rain.

More particulars to follow for next month's notes.

## Miscellaneous Notes

From the Note Book of Fruit Inspector  
E. H. Wartman, Montreal.

We are about to close our books for the season in apples, as there are only a few barrels and boxes left of the 1917 crop. It will be a season long to be remembered by our fruit men, both growers and dealers. While we hear some say we came out about even, more say we have lost heavily. For instance, I know of apples costing over five dollars laid down here selling around \$1.50 a barrel, which means a very serious loss. However, out of this same storehouse No. 1 "Spy" sold for \$8.00 a barrel. How do we account for this? It was simply this: The No. 1 perfect apples were few compared with the No. 3 grade, which had all the diseased spots and insect cuttings into the tissues of the apples. These kept until the last, and were sold in a wasty state at very low rates. This is June 21. It may be possible to pick up a few barrels in our city of No. 1 "Spy" apples original pack at \$10 to \$12 a barrel. Apples carefully handled and kept at proper temperatures have kept well this year. A few Washington Winesaps are in store here still, and bringing around \$5 a box, or at the rate of \$15 a barrel. This variety is well liked for its pleasant sub-acid juice, and its high red color makes it a fine table apple for this late date.

On my round of inspection work this season I noticed some Ontario Spy apples ticketed at \$1 a dozen, or at the rate of \$15 a bbl. I fancy in war time 75% to 100% is

far too much profit. Thirty-one years ago I picked, packed and laid on dock No. 1 Spy apples at \$1 a bbl., and after freighting them some distance, was glad to sell them at \$1.50 a bbl. The very high prices we see placarded on baskets and boxes of choice apples does not matter to the man who is getting a salary of \$10,000 to \$25,000 a year, but the man who only gets an income of \$1,000 must buy the same article or do without.

### The Strawberry Trade.

American strawberries arrived here on the 27th of March from Tennessee in car lots in good order, and sold at high prices. Up to June 14th we had received from various sections of the United States 56 carloads, or 17,152 crates, against last year, commencing 29th March, 99 cars, or approximately 24,000 crates. The reason for so great a shrinkage in one year was the high prices asked at shipping points, which, with freight rates and duty added, made it almost prohibitive to bring such tender fruit in.

Our Ontario berries have been arriving since June 11th, and bringing fabulous prices. For several days 30 cents a 4/5 quart box was the ruling price.

Our own Quebec berries are now arriving and selling at 21 cents by crate in shorts. The berries are large and free from sand, bright in color, and in my opinion, where they were not Winter killed, will produce abundantly.

The weather being cool, and plenty of moisture in the soil since blossoms opened, has caused a good setting. We are living in hopes of a full crop, that many may be made into jam, so that our Canadian boys on the other side may get a plentiful supply. They are fighting hard to gain liberty and freedom for all nations when the cruel war is over.

## Victory Bonds

5-year Bonds, due 1st December, 1922.

10-year Bonds, due 1st December, 1927.

20-year Bonds, due 1st December, 1937.

Price: 99½ and Interest

Free from all income or other taxes  
imposed by the Parliament of Canada.

Victory Loan Booklet and full information  
on Request

A. E. AMES & CO.

UNION BANK BUILDING, TORONTO

Transportation Building - Montreal

74 Broadway - - - - New York

Investment  
Securities

Established  
1889

## Prepare for Winter—Now!

The winter losses last year were unusually heavy, running from 10 per cent. to 65 per cent., and averaging over 25 per cent. Many apiaries were wiped out altogether. . . . These losses would have been much less if beekeepers had properly packed away their bees. . . . WE HAVE TESTED in our own apiaries the wintering cases we advertise, and not having lost a colony in two apiaries in two years, we have faith and confidence in our cases. Stores and warmth will do the trick. We offer you the warmth—suppose you write us for particulars now. . . .

## QUEENS

REQUEEN your apiary in July and insure strong, vigorous bees for the Winter months. Queens we have sold this Spring have been phenomenally good—and we have sold a lot of them. Introduce new blood in your apiary—it will pay big dividends next year. . . .

**The Tillson Company, Limited**

"Everything for the Bees."

TILLSONBURG, ONTARIO



**QUEENS OF QUALITY**

Select 3-Band Italians, bred for business.  
Untested, \$1.00 each, six for \$5.00, \$9.00  
per dozen. Circular free.  
Dowelltown, J. I. BANKS, Tenn.

**North Carolina Bred Italian Queens**

of Dr. C. C. Miller's strain of pure three-band Italian bees, gentle and good honey gatherers. July 1st to Oct. 1st, untested, 85c each, \$9 per dozen; tested, \$1.25 each, \$14 per dozen; selected tested \$1.75 each. Safe arrival and satisfaction guaranteed.  
L. PARKER, R. F. D. No. 22, BENSON, N.C.

**Three Banded and Golden Italian Queens**

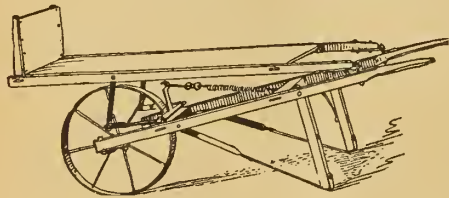
Untested—\$1.00 each; 6 for \$5.00; 12 for \$9.00.

Selected untested—1 for \$1.25; 6 for \$7.00; 12 for \$14.00.

Send for Price List. Cash with Order.

**W. R. STIRLING**

Queen Breeder RIDGETOWN, ONT.

**Apiary Barrows**

A labor saver. Every beekeeper and small fruit grower should have one. Order early, as number is limited for this season.

**W. R. PENNOCK**

Manufacturer,

STOUFFVILLE, - - - ONTARIO.

**British Columbia**

Chas. L. Shaw, "The Colonist," Victoria, B.C.

**W**HEN frost hit the Okanagan Valley during the third week in May it did damage estimated at a million dollars. Even the old-timers shook their heads in wonderment at the breaking of the firmly-fixed tradition that a killing frost never visits the Valley later than May 10. The only precedent to this year's havoc happened about thirteen years ago, when tomato plants were nipped during the close of May. On the basis of injury to crops in dollars and cents, however, last month's frost set a new record.

The frost cut a swath through the Penticton orchards about three miles long, eating its way through the trees and plants situated in the pockets and depressions, and missing those on knolls and high benches. About ten of the best orchards in the Penticton section were almost wiped out, apricots, apples, cherries and vegetables suffering equally.

In the Summerland district, Garnet Valley appears to have fared the worst. A narrow valley with high hillsides and lying just in line with the flow of the chilling northern breeze, the full effect of the frost was felt, and even apples were affected. Tomato growing had been taken up more extensively this year than ever before, and the frost passed over the young plants shortly after they had been set out, killing thousands. This loss has been minimized by the prompt action of the Fruit Union officials. Manager Lawler, who was on a holiday trip, was immediately communicated with at Spokane by President E. R. Simpson, and Mr. Lawler bought up 150,000 plants to take the place of those that had been lost. Further supplies, totalling 63,000 plants, were secured from the Coast and Keremeos. It is estimated that the apple crop will be 10 per cent. less because of the frost.

The loss at Kelowna was considerable, especially with tomato plants. Peachland, Greta, Naramata and Vernon escaped. Kaledon will have a twenty per cent. loss all round.

Girls from the city, the business office and the university are rallying to the aid of the strawberry growers this summer, and

as efficient pickers have put the Chinamen very much in the background. When the season reaches its peak, it is estimated that seven hundred girls will be employed in the berry fields to the almost total exclusion of Oriental labor, which a few short years ago monopolized the farm labor situation in that district.

Continued dry weather and three days of more or less steady wind has reduced the Gordon Head and Saanich strawberry crop to about sixty per cent. its normal size, and the fruit-growers are now contemplating total shipments to the prairies of not more than fifteen carloads, where twenty-two were sent out last year.

So far, British Columbia farmers have not shown eagerness to take advantage of the Soldiers of the Soil movement, and the last report issued by J. H. Beatty, organizer for the Province, states that B.C. has enrolled 1,573 boys for farm labor, and has placed only 540 on the farms. A large number of boys from the Coast sections, however, are being sent to work on the prairies.

At a conference of delegates from the Farmers' Institutes held in Grand Forks a resolution was passed, requesting the Provincial Government to urge the Federal authorities to conscript all Doukhobors of military age and aliens for service in such capacity as deemed fit, at the rate of \$1.10 a day.

News that the Federal embargo on the importation of fruit, among other articles, will include not only strawberries, but will also cover fresh small fruits, apples, cherries, peaches, plums and other tree fruits, was welcomed by British Columbia fruit growers. The competition offered by American produce has been eliminated, and the home market for the articles concerned materially improved as a result. Embargo action on the part of the Dominion was sought by British Columbia growers two years ago, but the application was not pressed on account of the fact that it was deemed undesirable to take any action which might be construed as unfriendly to the United States.

British Columbia apples and soft fruits are for the most part marketed in the prairies, where American competition can be met on a more equal basis than on the coast, where the "dumped" fruit from Seattle and San Francisco has in the past kept out the rail-haul British Columbia products. Year by year, however, the local fruit has been strengthening its hold.

The British Columbia Fruit Growers' Association is organizing a fund for advertising and emergency purposes. All growers are being asked to pay into this fund half a cent a box on apples and pears, half a cent a crate on all berries, quarter cent a box on stone fruits, 15 cents a ton on vegetables, tomatoes, cucumbers and similar produce. All the packing houses in the Okanagan valley have been approached and have promised to give their support on this basis.

The proposed emergency fund, as explained by Prof. Clement, of the University of British Columbia, who is also secretary of the Fruit Growers' Association, is mainly for the purpose of fighting against the practice of "dumping" American fruit on the prairie markets.

W. E. McTaggart, who resigned in 1916 his position with the Province as Prairie Markets Commissioner to resume newspaper

**Root's Strain of Italian Queens**

Owing to the enormous demand for our queens we have been compelled to advance our prices over last season. In numerous cases this strain has proven itself to be

**ALMOST ENTIRELY IMMUNE TO EUROPEAN FOUL BROOD.**

The queens are reared by one of the best queen breeders in the whole United States, namely, Mr. M. P. Pritchard and Sons. They are famous for their resistance to European Foul Brood and

**FAMOUS FOR HONEY-GATHERING QUALITIES.***Write for Special Terms***The A. I. Root Co.**

MEDINA

OHIO



work, and who has since been in the Canadian Army, has been given an overseas commission with the Y.M.C.A., and will have headquarters in London.

Some quick thinking, coupled with quick action, permitted Harry Tidy, of Keremeos, "tomato king of the Similkameen," to save his crops last month when an unexpected frost visited his big farm. Shortly after midnight he awoke to find the thermometer so low as to paint a disagreeable picture of certain disaster in his mind. However, he got busy, and within a few minutes had his full force of Chinamen on the job, gathering wood for fires at different spots throughout his rows of tomatoes. Over a million tomato plants were to be saved. He ran his tractor between the rows at a speed that would have been called foolhardy under different circumstances, and meantime his men had piled wet hay and manure around the cold frames. Fires were started below the hay, thus creating a heavy smudge that reached almost every corner of the place and saved nearly every plant.

The B.C. Hop Company, of Sardis, has obtained a big contract from the United States Government to supply the American troops with dried vegetables. The company has transferred a quantity of machinery from their plants at Sacramento, California.

The executive of the Provincial Government will shortly concern itself with the proposal to acquire the Coldstream Ranch, of Vernon, involving a purchase price of \$900,000, payable in five per cent. twenty-year Provincial Government Bonds, issuable at par. There are some 12,000 acres, comprising 899 acres of full-bearing orchards, 1,144 acres of other agricultural land actually under cultivation, 400 acres of cultivated meadow land seeded to timothy and clover, 1,321 acres of available

irrigable land requiring no addition to the existing water system to bring it under cultivation, 858 acres of good agricultural land lightly timbered and involving little expense in clearing, 7,976 acres of first-class range, \$50,000 worth of stock, implements and general equipment, and \$70,000 worth of farm buildings.

The value of the 1918 fruit crop has been set at \$4,000,000 by M. S. Middleton, Provincial Horticulturist, who has just completed a tour of the principal farming districts of the Province.

As far as the financial end of it is concerned, Mr. Middleton is confident that this will be a banner year for B.C. growers. He states that most of the fruit has already been contracted for—and at record prices. Last year's total value of the crops amounted to about \$3,000,000.

Raspberries and strawberries will be plentiful and of good quality in the Kootenay section. The strawberry harvest will be a little smaller than last, however, because the plants were unable to develop sufficient crown to carry a heavy yield. Rasps were touched by the frost, but this will have little effect on production.

On the Lower Mainland raspberries and blackberries are reported to be doing particularly well. As regards the Okanagan, Mr. Middleton says the bearing orchards are rather patchy in some places, but, taken as a whole, the apple crop will be considerably larger than last year as a result of increased acreage. Pears will have a big season. Recent frosts have cut down the quantity of stone fruits originally expected. It is reported that apricots have been reduced thirty-five per cent., and other stone fruits to the extent of about twenty-five as a result of the frost. Apricots have been contracted for at the high rate of \$150 a ton (7½ cents

## QUEENS

Three Band Italian, Untested, \$1.25; Select Untested, \$1.50; Tested, \$2.00; Select Tested, \$2.25; Breeders, \$5.00 each. All queens sent by return mail.

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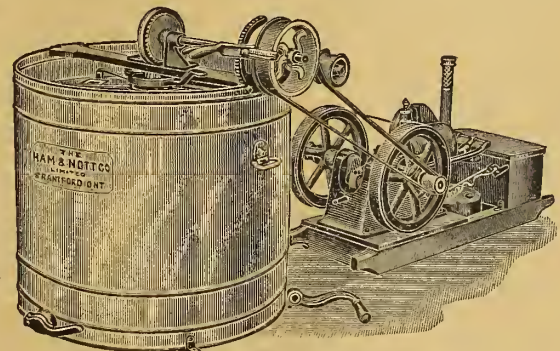


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ITALIAN QUEENS**

have proved for the last 11 years to the Canadian friends to be the best of E.F.B. resisters. Hardy, hustlers and gentle.

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Plans "How to Introduce Queens and Increase," 25c. Lists free.

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That fill the super quick

With honey nice and thick

They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc.

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For many years there has been a demand for a book which would give in concise form the many different methods of queen rearing, as the Doolittle, Pratt, Alley, Miller, Dines and others with variations as practised by the large queen breeders.

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per pound), where the price per pound last year was 4½ cents. Apples will be sold at 3½ cents a pound, orchard run, compared with 1¾ cents in 1917. Numerous offers were made to the growers at \$50 a ton (2½ cents a pound) for common run. Two

cents was the price last year.

Whatever damage has been done by frost and other agencies will be offset by the higher prices. This should be one of the most profitable years B.C. growers have ever experienced.

**Leading Apple Varieties**

**A**MONG the varieties of commercial apples, Baldwin leads in production, according to a nation-wide survey recently completed by the United States Department of Agriculture. It constitutes one-half of the barreled crop of New England and New York and one-fourth of the crop of western Michigan, all regions of large apple production.

Ben Davis, Gano, and Black Ben have the widest geographic distribution. Prominent centres of Ben Davis production are in the Shenandoah-Cumberland region, including parts of Virginia, West Virginia, Maryland, and Pennsylvania; it leads in Missouri, Illinois, the Ozarks, and the Missouri River and Mississippi River apple regions; and it ranks high in production in the west, particularly in Colorado, Utah, and Washington. Gano and Black Ben are grown more extensively in the west than in the middle west and east.

**Commercial Importance of Winesap.**

Winesap follows Ben Davis in commercial importance, and this is particularly great in the Yakima and Wenatchee Valleys in Washington. In the Piedmont district of Virginia, Winesap is the leading apple variety, and it has considerable commercial importance in the Arkansas and Missouri River valleys and in parts of Illinois.

The Jonathan is the leading variety in Colorado and Idaho, and is important in Washington, Oregon, Utah, and New Mexico. Its orchards are widespread at the junction of Iowa, Missouri, Nebraska, and Kansas, and are common in Illinois, the Ozarks, and the Ohio River region, and its production is increasing in some parts of the East.

York Imperial is the leading commercial apple of the Shenandoah-Cumberland region, a region that ranks next to New York in the production of barreled apples. The normal apple production of this region is 3,500,000 barrels, of which Yorks are two-fifths. The Ohio River section and Missouri also produce considerable quantities of this variety.

The Northern Spy was regarded as the third apple variety in order of commercial production until recent years, and now it is probably the seventh. The commercial crop comes mostly from Michigan, New York, and Vermont. Close to Northern Spy is Yellow Newtown, or Albermarle Pippin. Its leading district is the Pajaro Valley, Cal.,

where 1,000,000 boxes were produced in 1916 within a radius of 15 miles from Watsonville. Following California in order of production is Oregon, where the Yellow Newtown districts are the Hood River and Rogue River valleys. Washington is third in order and Virginia fourth.

**Other Important Varieties.**

Apple varieties that are increasing in commercial importance in the United States are Jonathan, Stayman, Delicious, Winesap, Rome Beauty, York Imperial, Duchess, Grimes Golden, McIntosh, Wealthy, Transparent, Black Twig, Williams Early Red, Arkansas Black, and Yates. A stationary production is held by Baldwin, Rhode Island Greening, Yellow Newtown, Gravenstein, White Winter Pearmain, Northwest Greening, Gano, Wagener, Maiden Blush, Benoni, Bonum, Nero, and Starr.

For one reason and another many apple varieties are declining in production. Among them are widely known kinds, such as Ben Davis, Northern Spy, Esopus Spitzenburg, Tompkins King, all kinds of Russet, Hubbardston, Missouri Pippin, Tolman Sweet, Smith Cider, Fameuse or Snow, Yellow Bellflower, Twenty Ounce, Rambo, Swaar, Red Canada, Wolf River, Fall Pippin, and other commercial varieties. To this list could be added many non-commercial ones.

**Vegetable Competitions**

The Ontario Vegetable Growers' Association is this year conducting two competitions, one for gardens, and the other for field crops. The regulations for the garden competition state that each garden must contain not less than three acres, and that they will be judged twice during the season, the first judging not later than July 10th, and the second judging not later than August 10th. An entry fee of \$1 will be charged. There will be five prizes running from \$30 down. Judges will be supplied free of charge by the Provincial Department of Agriculture.

The field crop competitions will be conducted in onions, celery, tomatoes, cabbage, early potatoes, and musk melons. The cabbage and potatoes will be judged not later than July 10th, and the celery, melons, onions, and tomatoes about August 10th.

The province for both competitions will be divided into four districts, as follows:—

1. Ottawa, Kingston, Belleville.
2. Toronto, Welland, Clinton and Louth.
3. London, St. Thomas, Stratford, Brantford.
4. Blackwell, Sarnia, Tecumseh, Sarnia Independent.

The plots entered for the field crop competition must consist of not less than one-quarter of an acre; there must be ten entries in each class of vegetables named from each district; members can compete in any, or all, of the six crops mentioned; the entrance fee is \$1 for each crop; judges will be supplied by the Provincial Department of Agriculture; the prizes, six in number, range from \$20 down; special prizes will be offered at the Toronto, Ottawa, Kingston,



and London fairs, open to prize winners in the different districts. Express charges on these exhibits will be paid by the Provincial Government. Only vegetables from the plot entered in the competition can contend for the special prizes at the fairs mentioned.

## Fruit Marketing Prospects

G. E. McIntosh, Dominion Fruit Division, Ottawa.

**P**ROSPECTS for marketing facilities are more encouraging for the soft fruit producers than for the apple growers, and particularly so for those using express transportation and not dependent upon freight service. I do not wish to discourage the apple men, but it is evident that with the embargo against shipments to Great Britain, Nova Scotia will in 1918-19 have to look to the same markets as they have the past season. That will mean an additional rail traffic of approximately 500 cars, or in other words, 500 cars less for transporting Ontario shipments.

There is no use trying to avoid facts, and with this situation facing the fruit growers, I take this opportunity of urging Ontario apple shippers to get their crop moving just as early in the Fall as possible, thereby having the advantage of using box cars, of which a supply will undoubtedly be made available with the co-operation of the railway companies.

Every effort must be made also to conserve cars this season by loading as heavily as safe carriage to the fruit will warrant; and carload sales should have no restrictions in this regard. Many consignees, even in large centres, insist upon a close adherence to minimum carload weights, the result being an economic waste which reduces the efficiency of the railways. To increase the average loading of apples by one ton would be equivalent to placing nearly 1,000 additional cars in service in Canada, and a car saved is a car gained. It was only by following out suggestions along this line that Nova Scotia was able to move 2,000 carloads, some carrying 338 barrels, or 49,650 pounds, last season. They saved over 450 cars by this excessive loading, but there still remain over 100,000 barrels to be marketed.

It has been my privilege to be more or less associated with the Food Control office, and I say in all sincerity that the absence of foodstuffs has been simply appalling. Lord Rhondda recently made the remark that "food wanted by mankind did not exist." A scarcity of food is a real sacrifice, and a matter of deep concern for each individual. Let each householder, therefore, be his own food controller. There must be no waste of fruits the coming season. The public is using more fruit than in former years, and as an article of food rather than

a luxury. The medical profession advise that a fruit ration is necessary for every individual, therefore, to avoid waste in transporting this commodity, we want to do everything within our power to assist in getting the best possible express or freight service during your marketing season.

With railway conditions as I have outlined as plainly as it is safe to do, it is evident that in marketing the 1918 fruit crop, even with a preference in car supply and service in transit, difficulties are bound to spring up. We cannot promise fruit growers anything, but if certain traffic regulations (probably made effective to facilitate rush movements) threaten waste or loss of your shipments, we want to know it promptly, when everything possible will be done to promote the welfare of the fruit growers. We have assurance of the co-operation of the railways and the express companies for the coming season in moving the fruit crop of each province, and I take this opportunity of asking for the further co-operation of the growers and shippers by making the best possible use of equipment. Avoid as much as possible the half-car shipments, and load every pound you can in your carload sales. Push the sale of patent-covered baskets in preference to leno, especially when a refrigerator car has to be used.

## Bulletins and Books

"The Culture and Diseases of The Sweet Pea" is the title of a handsomely bound, well printed book by J. J. Taubenhau, Ph. D., Plant Pathologist and Physiologist in charge of the Experiment Station at the Agricultural College of Texas. The book contains over 200 pages and is well illustrated. It deals with such subjects as: The culture of Sweet Peas under glass, diseases of greenhouse sweet peas, field diseases of sweet peas, insect pests, diseased seeds, spraying and other subjects. The book may be purchased for \$1.50 from The Canadian Horticulturist or the publishers E. P. Dutton and Co., 681 5th Ave., New York.

The 12th annual report of the Horticultural Societies of Ontario and the 13th annual report of the Ontario Vegetable Growers' Association are being distributed by the Ontario Department of Agriculture. Both contain much interesting and helpful information and are well illustrated.



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## DOUGLAS GARDENS

### Catalogue for 1918

Contains a complete list of a number of new plants that will interest customers this season.

A fine assortment of Paeonies. Perennial plants of all kinds. Shrubs and roses.

### BEDDING PLANTS

Standard Fuchsias from 2 to 3 feet. Carnations of the finest varieties. Heliotrope, Cowslips, Salvia, Salpiglossis, Snapdragons, Pentstemon, Lobelias, Pansies, Ageratum, Verbenas, Asters and Stocks.

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**\$30,000 IN PRIZES**

\$1,500 Added this Year

Fruit and Flowers receive their share of the increased prize list this year. Plan to attend Western Ontario's popular Exhibition—bigger and better than ever. Big programme daily and nightly, bands, pipers, Pure Food Show, Midway, Fireworks, etc.

Prize Lists, Entry Forms, etc., from the Secretary.

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Prices are  
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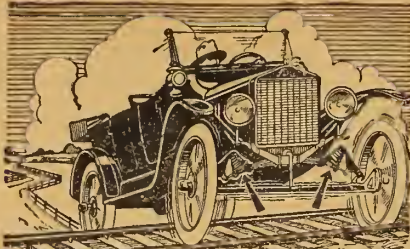
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**T**IRES are selling at fabulous figures in Europe. War conditions may make them go almost as high here. You owe it to the country and to yourself to make your present set give the greatest possible mileage.



### Shock Absorber For Ford Cars

Hassler Shock Absorbers save tires because they support the weight of the car. When the car strikes a rut, they gently compress and absorb the jolt instead of forcing the tires to lift the car. The increased mileage from one set of casings pays for them. Hassler Shock Absorbers make your Ford ride as easily as a \$2,000 limousine. They save gasoline, reduce up-keep cost one-third, and increase the resale value of your car. 300,000 Ford Owners recognize their economic necessity.

### 10-Day Free Trial Offer

Phone, write or call for FREE TRIAL BLANK and we will have a set of Hasslers put on your Ford without a cent of expense to you. Try them 10 days. Then, if you are willing to do without them, they will be taken off without charge. Don't ride without Hasslers simply because someone discourages you from trying them. Accept this offer and see for yourself. Over 300,000 sets in use. Do it now.



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## CABBAGE PLANTS

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# POULTRY YARD

## Putting Chickens to Bed

One would naturally suppose that chickens know when to go to bed. But what is a chicken to do if it is suddenly taken from the state of Washington to Alaska, where the nights are only one or two hours long? If it were to go to bed at sunset, which is at about ten or eleven o'clock, and get up at sunrise, which is about two or three o'clock, it would be likely to die of nervous exhaustion from lack of sleep, unless it becomes acclimated.

A woman had some chickens in her Alaska home, at Valdez, and a friend sent her some others from Seattle, Wash. The first evening the chickens from Seattle kept roaming around by the light of the sun until about ten o'clock. They did this for two or three evenings. Finally, their owner had to put them in their coop and shut the door at a very much earlier hour, until they got used to the long days. Later they seemed to like the unusually long, bright evenings, but went to bed with the other chickens at a reasonable hour.

E. T.

## July Work in the Poultry Yard

Sweep down the cobwebs and clean up the house generally, for July is a hot month, and heat and filth make a strong combination favorable to disease and vermin. The work should be done thoroughly, and the premises sprayed with a good disinfectant.

If Summer hatching is not done, the male birds should be removed from the flock and placed in separate quarters until after molting. Males that are not to be kept for next season had best be marketed now to save the feed and to prevent fertile eggs, for infertile eggs are better keepers during hot weather.

As soon as the cockerels start to crow they should be separated from the pullets and fed all they will eat up clean. Those that are not to be kept over for breeding should be sold to make room for the others. All surplus stock should be gotten rid of, for there is no profit in feeding birds that are not needed.

July is an excellent month for the sale of roasting fowls and spring chickens. It is the best season to sell spring chickens.

The drinking vessels should be put in the coolest possible place, and the houses should be well ventilated at night.

There is still a good profit in the sale of dressed ducklings.

When all things are equal, Summer hatches can be grown at less cost of money, labor and worry than those brought out during the Winter and early Spring. If chicks are provided with a cool range they will grow with surprising rapidity.

The greatest cost in growing chicks is for the first two pounds weight; after that each additional pound will average about half the cost of the first. This makes it more profitable to grow the youngsters up to roaster size than to sell them as broilers—at least it is so in very many sections where roasters are preferred.

Broilers hatched during June will be marketable about September; July-hatched broilers by October, August-hatched broilers by November, and September-hatched by December. There is but little demand for

broilers until November. It is highest in February.

A soft roaster should not weigh more than four pounds when dressed, and should be finely developed in four to six months. These are usually hatched in early Spring and sold during the Summer. Roasting fowls hatched in Summer are classified as "large roasters," and must weigh from four to six pounds.

Two objections have been raised against summer hatches: First, there is too much danger from depredations of lice; second, the chicks are weakened and die from the effects of the hot sun. These objections apply when no care is given the youngsters, and would apply equally well in early spring when the days and nights are likely to become suddenly cold.

The secret of raising summer chicks is to keep them comfortable and contented, and to see that they do not lack anything that is for their good. Overcrowding must be avoided, and the houses well ventilated so the chicks keep cool at night. Fresh air is a great tonic; along with range and shade, green food and sound grain, it does wonders.

## Marketing the Old Hens

Just after the broiler season is over, when Spring chickens are scarce and the Fall run of poultry has not yet begun, is a good time to weed out all the hens you will not want to breed from another season

## APPLE BARRELS

We ship them all over Ontario.  
Machine-made, Standard size.  
Get our prices.

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**SARNIA BARREL WORKS,**  
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Thousands of farmers are responding to the call. Here, right at the door of Southern Ontario, a home awaits you.

For information as to terms, regulations and railway rates to settlers, write to

**H. A. MACDONELL,**  
Director of Colonization,  
Parliament Bldgs., TORONTO, CAN.

**G. H. FERGUSON,**  
Minister of Lands, Forests and Mines.



and put them on the market. They will bring very fair prices at this time, if marketed in first-class condition.

They should be penned in a comparatively small enclosure and fed all they will eat for about two weeks. This fattens them rapidly unless they are over large to start with, and makes feeding profitable even at present high prices of grains.

The pen should be so arranged that the hens will have shelter from the sun during the hot hours of the day, and their sleeping quarters should provide plenty of fresh air at night.

Feed all the hens will eat three times a day, but do not leave any soft food in the troughs between meals. Some scattered grain may be left in the pen, but not enough to prevent them from eating quantities of the soft feed which is more readily assimilated.

In the morning feed a mixture of two parts wheat middlings or "red dog" flour and one part cornmeal. Add a little salt, dissolving it in the water used in the mixture to insure even distribution. If skim-milk is available, use this instead of water in mixing the mash. Mix it into a stiff dough—the stiffer the better. At noon give a light feed of oats, and later in the day give the fowls all the corn they will eat, along with a good feed of beef scraps or cut bone.

Hens so fattened on pure, sweet products come to the table with fat globules deposited among the meat fibers, which simply melt throughout the flesh in cooking. Thus the carcass is tender and sweet, and without the stringiness commonly found in old hens. Good marketing methods often result in a gain in the price hens bring per pound, as well as in the number of pounds.

Poultry raisers who send only high-quality products to market soon find the demand for their goods increasing, and they also get the benefit of top-notch prices. It pays to cater to the many folks who would like to use more poultry on their tables if they could only feel sure of getting the quality commonly associated with goods "fresh from the farm."—R. B. S.

## Dry Clover for Poultry

In the Winter we need some food for the hens, and the best we can get, except fresh greens, will be dried clover. Where alfalfa is grown on the farm this is an easy matter to manage, but not all of us have alfalfa. One year I bought a load of alfalfa, and when it was unloaded between the wagon and the stack was a deep layer of fine leaves. Then the hayrack was covered with leaves, which I had the man sweep off for me. I had a couple of tightly packed gunny sacks of splendid poultry greens, needing only stemming to make it fresh and palatable for the hens.

White clover grows quite generally over the country, and it offers a very good opportunity to store a supply of splendid green food for Winter use, as the leaves can be cut and raked and stored after they have cured. As white clover will afford little but leaves, there is practically no waste. In the cities the lawn clippings can be thus utilized, and in the country the scythe or sickle can be used to cut the leaves. As a new crop of leaves will quickly appear, several cuttings can be made during the Summer.

Sweet clover will make as good feed as the white clover or alfalfa, but here the leaves alone should be saved, and it is much more difficult to get them. The young growth is best and the easiest to get, unless we intend to do the work by hand, when the large thickly leaved stalks will give the best chance.

## Sending Money to Soldiers



Those who have friends or relatives at the front, may wish to send money, but possibly do not know the best way to do so.

If time permits, the safest and most convenient method of making remittances abroad is the Bank Money Order or Draft, as issued by The Merchants Bank.

If, however, it is necessary to send money without delay, the Bank will arrange this by Cable Transfer.

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with its 102 Branches in Ontario, 32 Branches in Quebec, 19 Branches in Manitoba, 21 Branches in Saskatchewan, 53 Branches in Alberta, and 8 Branches in British Columbia serves Rural Canada most effectively.

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Any Hardware dealer will show you why Dunlop Garden Hose will not kink nor crack, and why it will outlast and outserve any other make.

Also Makers of High-grade Tires for all purposes, Belting, Packing, General Hose, Mechanical Rubber Products of all descriptions, and General Rubber Specialties.

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## Fruit Packages

Have you placed your order for them yet? The fruit season will soon be here when you will need them. In order to get highest prices in the best markets, you require the

### BEST STANDARD PACKAGES

Secure these by ordering at once from

**The Hantsport Fruit Basket Co.,**

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We have a large stock of all sizes

## FLOWER POTS

FERN OR BULB PANS

1/2 AZALEA POTS and Rimless Pans

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## HAULING BIGGER LOADS

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### MICA AXLE GREASE

"Use half as much as any other"

Axles are rough and porous, causing friction. The mica flakes fill the pores and the grease keeps them there. Mica Grease prevents locked wheels and hot boxes, gives sure relief for unnecessary strain on horses and harness.

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"Lengthens leather life"

replaces the natural oils that dry out of the leather and puts new life in old harness. It penetrates the leather leaving it soft and pliable, and overcomes the worst enemies of harness—water and dirt.

Sold in standard sized packages by live dealers everywhere.

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BRANCHES IN ALL CITIES



## PERRY'S SEEDS

Alpine and perennials, unique collection; many new varieties unobtainable from any other source.

Hardy and adapted for Canadian climate.

HARDY PLANT FARM, ENFIELD, ENGLAND

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Control complete. Prevents drought losses. Reduces labor bills. Increases profit. Special Portable Line for \$15.75. Send for new Bulletin.

The Skinner Irrigation Co.  
217 Water Street Troy, Ohio.

## Vineland Co-operative Association

W. M. Gayman, Secretary.

In almost every community where twenty-five or more farmers or fruit growers are located, you will find a feed store or a mill, a grocery and hardware store, and a farm implement dealer. These various businesses are, in many cases, handled very efficiently, and in many other cases the opposite could more accurately be said of them. It is surprising, in looking up the financial rating of a vast number of these smaller concerns, to find that credit is poor, and that they have not sufficient capital to enable them to buy any of the commodities they handle in carlots. The farmers in the above particular community are clearly not being served as efficiently as is their privilege. In other cases the dealer may be financially strong. If he is acquainted with the market, he knows the best time to buy. He buys at this time and in large quantities, but instead of giving his customers the benefit of the good bargain, he may sell at the later higher market price, and thus make so much larger profit for himself. Let these same twenty-five men form a stock company. Each man should subscribe for one hundred, two hundred, or five hundred dollars' worth of stock, according to the amount of business it is hoped to handle. This will give three to five thousand dollars capital. The appointment of the directors is the next important item. Seven farmers who have made a success in their individual farming make good directors.

If the business is large enough, it will be necessary to hire a manager. In our company each member is bound to place his order for all supplies through the secretary. This gives him a chance to buy in large quantities. Each member should give the secretary an idea of the approximate amount of goods he will require. If the business will warrant a warehouse along the railroad siding, it will always be a valuable asset, and will be of great assistance in distributing supplies. If the warehouse cannot be built the first year, a temporary building can be rented. In our company last year we purchased supplies to the value of \$62,000. We dealt in coal, feed, sulphur and spray materials, baskets and crates, cedar posts, nursery stock, hay and straw. These were sold to our members at fair market value. Our gross profits exceeded five thousand dollars.

## Orchard and Garden Competition

THE Horticultural Branch of the Provincial Department of Agriculture has issued rules and regulations for an Orchard and Truck Competition and also for a City and Farm Garden Competition. The rules and regulations for both competitions provide that all farmers' institutes and other organizations desiring to organize these competitions must notify the Provincial Horticulturist at Victoria. The fields or plots entered for the first-named competition must be clearly defined, and there must not be less than 10 bona fide entries for each kind of crop from any one organization, and no competitor can compete for prizes offered by more than one organization. At least \$30 must be offered in prizes for each kind of crop. The competition is divided into seven classes, one for bearing orchards, another for young orchards, a third for bearing strawberries, a fourth for bearing raspberries, and a fifth, sixth and seventh for tomatoes, onions, and celery.

In the City and Farm Garden Competi-

tions 10 bona fide entries are also required in each competition, but extra prizes can be given if this number is exceeded. Gardens may be not less than 1,000 square feet in area. If required, the Department will supply the services of assistant horticulturists. The judges will visit the gardens three times, or as often as possible, during the season. The Department will supply one judge. There must be at least \$30 offered in prizes for each competition, and, this amount being offered, in each instance will be supplemented by a grant of \$25 from the Department. The score card calls for 20 points for quantity and value of crop, quality of crop, assortment as to range of season, variety and kind, industry, enterprise and skill, and cleanness and neatness. The local Fall exhibition societies have been requested by the Department to offer special prizes for collections of vegetables grown by competitors.

## FOR SALE

### Fenwick Nurseries

This is a good business and a going concern, consisting of eight houses, all in first class condition some being only two years old; are fully stocked. These are the only nurseries undamaged by the recent explosion. The only reason for selling is the winding up of estate. This is an elegant proposition for anyone understanding the business.

Apply G. A. J. BOAK

### FENWICK NURSERIES

BOX 1087, HALIFAX, N.S.

## The Fruit & Produce Market

The Commission firms undernoted wish consignments of fruit and general produce. They will be pleased to have you write them for information, shipping stamps, etc., if you have fruit or vegetables for sale.

## STRONACH & SONS

33 Church St., Toronto, Ont.

Wholesale Fruit, Produce and Commission Merchants.

Canada Food Board License Nos. 3-018, 3-019 and 7-005.

## H. J. ASH

44-46 Church St. - Toronto, Ont.

CONSIGNMENTS OF FRUIT & VEGETABLES SOLICITED

Shipping stamps furnished on request.  
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## DAWSON - ELLIOTT CO.

32 West Market St., Toronto, Ont.

Wholesale Fruit and Produce. Consignments Solicited.

Canada Food Board License No. 3-045, Class II., Div. B., and 3-046, Class II., Div. C.

## HERBERT PETERS

88 Front St. E., Toronto, Ont.

See advertisement on page v.

Canada Food Board License Nos. 3-007, 3-008 and 3-009.



## Standard Containers

All interstate shipments of fruits and vegetables in containers must be in packages that conform to the provisions of the United States Standard Container Act, says an announcement from the Bureau of Markets, United States Department of Agriculture, which is charged with the enforcement of the Standard Container Act. The baskets, crates, hampers, and boxes must be in sizes containing half pints, pints, quarts, or multiples of quarts; slight variations either over or under size may be allowed, provided the average for any shipment conforms to the standards. Climax baskets for grapes can be made only in 2, 4, and 12 quart sizes and of the dimensions specified in the act.

The variations from standard sizes are made, it is stated, because of the nature of the containers, they being usually rough finished. No allowance for products heaped over the edge of the container is made, and the capacity of a container is determined by stricken measure tests.

Although the law applies only to interstate shipments, it is probable, according to the bureau, that inter-state shipments will be generally made in United States standard containers, because many manufacturers have arranged to make no containers except those that comply with the Federal size requirements. Even shippers whose products are usually consumed in their own State are said to favor packages complying with the United States Standard Container Act, because they have no assurance that their produce will not be sent across State boundaries before it is consumed.

The enforcement of the Standard Container Act, it is believed, will tend to eliminate deceptive practices in marketing fruits and vegetables, and give a "square deal" to both the purchasing public and the trade. Over forty food products inspectors already stationed in the large receiving markets are available for enforcing the act.

Every phase of life and industry has been affected by war activities, and it has been necessary to make adjustments in every line of work in order to compensate for the shortage of labor and to meet the new conditions imposed upon us. Apple orcharding is no exception to the rule, and we should endeavor, at all hazards, to keep up the essential work and eliminate those things which are not absolutely vital to our success.—Dr. A. J. Grant, Thedford, Ont.

A strawberry bed in good condition that has fruited but one year may be mowed now and the plants thinned and cultivated to produce a new bed for fruiting next year. Cut out all the old plants and many of the new.

## Schools and Colleges



OSHAWA ONTARIO

Visitor: The Lord Bishop of Toronto.

### A Residential School for Girls

Young Children also received.  
Preparation for the University. Art Department, including drawing, painting, wood carving and art needlework. Toronto Conservatory Degree of A.T.C.M. may be taken at the School. Fine, healthful situation. Tennis, basketball, skating, snowshoeing, and other outdoor games.

For terms and particulars apply to the Sister-in-Charge, or to the Sisters, of St. John the Divine, Major Street, Toronto. College reopens September 12.

## SANDER & SONS

ORCHID GROWERS

The Finest Stock in the World

Catalogue on Application

ST. ALBANS - ENGLAND

## ALBERT COLLEGE

It is more than a school  
It is a home!

where men and women are educated, trained and prepared to make full use of their talents and fit themselves for successful futures.

Everything that a good college calls for is found in Albert; and added to all is the uplifting and refining influence which comes from co-education.

### Full Courses Under Competent Teachers

in Literature, Music, Art, Expression, Theology, Physical Culture, Stenography, and Commercial.

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Write for information or College Calendar to

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Albert College, Belleville, Ont.

## ONTARIO LADIES' COLLEGE

WHITBY - ONTARIO.

Public School to Second

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Household Science,

Music: Instrumental,

Vocal,

Commercial,

Elocution, Art.

School Re-opens Sept. 11, 1918

Civic and Parliamentary

Studies, Gymnasium

Work and Swimming.

For Calendar apply to

Rev. F. L. Farewell, B. A.

Principal, 94

## OTTAWA LADIES COLLEGE

New Fireproof Building

Academic work up to the first year University. Music, Art and

Handicraft, Household Arts, Physical Culture, Etc. Ample grounds.

For Calendar apply to

J. W. H. MILNE, B.A., D.D., President.

The Capital offers exceptional advantages.

JAS. W. ROBERTSON, LL.D., C.M.G., Chairman of Board.

## PANSY

### "Canadian Beauties"

If you wish to enjoy Pansies of great Perfection in form, coloring and size, we offer you, under the above title a choice product. Every flower is a queen; every plant a picture to behold. It is a blending of every imaginable color and combination of color. Per packet ..... 50c

A FEW LIVE SEEDSMEN WANTED to handle my Pansy Seeds for Spring of 1919 in original packets. Write for terms.

WM. McSKIMMING, Pansy Specialist  
230 ELIZABETH ST., GUELPH, ONT.

## PEONIES

A limited number of roots of such choice varieties as Soulangue, Mignon, Primevere, La Lorraine, Sarah Bernhardt, Lamartine, Therese and Le Cygne will be supplied while they last. Send for price list if interested.

J. H. BENNETT

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# Good Prices Always

## For Your Fruit and Vegetables

OUR facilities enable us to realize top prices at all times for your fruit, vegetables or general produce. Aside from our large connection on the Toronto Market, we have established branch warehouses with competent men in charge at Sudbury, North Bay, Cobalt, Cochrane and Porcupine. In time of congestion on the Toronto market we have a ready outlet through these branches. We never have to sacrifice your interests.

Canada Food Board License Nos. 3-007, 3-008 and 3-009.

Branch Warehouses:  
Sudbury, North Bay,  
Cobalt, Cochrane and  
Porcupine.

## H. PETERS

88 Front St. East, Toronto

References: The Canadian Bank of Commerce (Market Branch) and Commercial Agencies.



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Consignment

Send for  
Shipping Stamp





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Advertisements in this department inserted at the rate of 15 cents a line, each line averaging seven words. Part lines count as whole lines, minimum of two lines accepted. Strictly cash in advance.

**BEEES**

**SWARTS' GOLDEN QUEENS** produce golden bees of the highest qualities. Satisfaction guaranteed. Mated, \$1.00; 6 for \$5.00; Tested, \$2.00. D. L. Swarts, Rte. 2, Lancaster, Ohio.

**FOR SALE**—3,500 3-Banded Queens, none better. Write for price list. J. F. Diemer, Liberty, Mo.

**GET JUNE, JULY and AUGUST** prices on 3-banded Queens. J. F. Diemer, Liberty, Mo.

**FOR SALE**—Three-band Italian queens from best honey-gathering strain obtainable. Un-tested queens, \$1.00 each; 6, \$5.00; 12, \$9.00. Safe arrival and satisfaction guaranteed. W. T. Perdue, Ft. Deposit, Ala.

**HONEY**

**WANTED**—First-class white honey, the coming season's production. Will pay ruling prices and supply tins. Foster & Holtermann, Limited, Brantford, Ontario.

**WANTED**—A reversible honey extractor with baskets 12-in. x 18-in. Box 30, Lambeth, Ontario.

**REAL ESTATE**

**ALL KINDS OF FARMS**—Fruit farms a specialty. Write, stating requirements. W. B. Calder, Grimsby.

**SEEDS, BULBS, PLANTS, SHRUBS**

**ORDER FALL BULBS NOW** and save half. Get Import Bulb Catalogue at once. Morgan Supply House, London, Ontario.



A complete, durable outfit for spraying potatoes and all row crops—easily adjusted to suit the width of your rows and the height of the vines. The

**Spramotor**

It isn't a SPRAMOTOR unless we made it

is the recognized standard of excellence—simple in design, powerful, durable. Made in many styles and sizes, operated by hand, horse and gasoline power.

Made in Canada. No duty to pay. Write to-day for FREE illustrated treatise on "Crop Diseases."

**SPRAMOTOR WORKS**

4017 King St. - London, Canada

**Too Many Girls for Fruit Picking**

This year there appears to be a surplus of girls for fruit picking and the Women's Farm Department of the Government's Employment Bureau have all the girls needed for fruit picking until September. Miss Hazel Martin, director of the department is desirous, however, that this surplus will work along the lines of food conservation instead, and will take work in canning centres where they will be employed to prepare fruit and vegetables for canning.

There are also a great many girls and women who have sent in applications to pick fruit who have stated that they will only be available for three weeks. "These girls will be likely called on during the rush season to pick raspberries and cherries, and should hold themselves in readiness to accept positions on three days' notice, as we are handicapped by not knowing in advance just when the rush season will commence." Says Miss Martin.

**Sugar for Canning**

Every effort is being made to provide sufficient supplies of sugar for the canning season. The Canada Food Board says that while restrictions in the consumption of sugar in given ways are necessary and must be strictly enforced, still by the present arrangements there will be plenty of sugar for canning purposes when the season arrives. Every effort should, therefore, be made to preserve fruit and vegetables to the utmost permitted by increased production.

**WANTED—APPLES**

1500 barrels large No. 3, Winters

500 barrels large No. 3, Falls

1000 barrels small No. 3, Winters

Variety of Winters, Ben Davis, or Baldwins

**FOR SALE**

1000 New Apple Barrels, cheap

**HYSLOP & SONS**

Greensville - - - Ontario

Canada Food Board License No. 14-157

**SEEDS**

Wholesale

**IMPROVED FARM ROOT SEEDS**

**IMPROVED VEGETABLE SEEDS**

**IMPROVED FLOWER SEEDS**

Seedsmen please enquire for our SPECIAL PRICES

**KELWAY & SON, Wholesale Seed Growers**

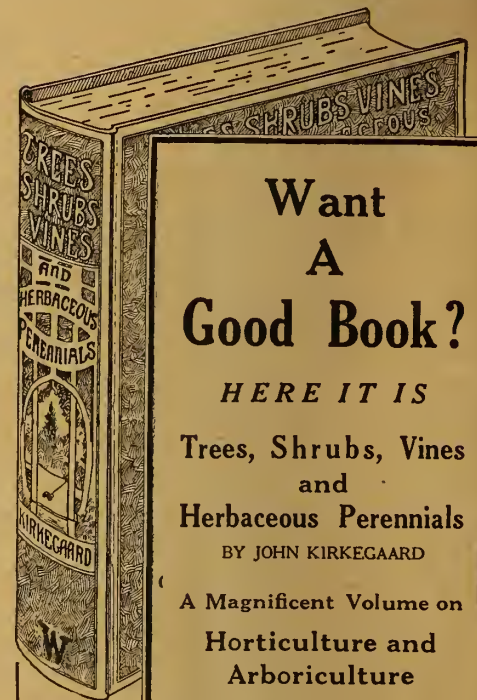
**LANGPORT, England**

Cable Address: KELWAY, LANGPORT

If tomatoes are tied to stakes, the plants will take up much less room and the fruit will ripen more evenly.

Early celery is best blanched with paper or boards. It is more apt to decay if earth is used. Earth is best to blanch late celery.

Keep the cauliflower leaves tied over the heads if you want clean, white, marketable heads.



## Want A Good Book?

HERE IT IS

**Trees, Shrubs, Vines  
and  
Herbaceous Perennials**

BY JOHN KIRKEGAARD

A Magnificent Volume on  
**Horticulture and  
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Of the many garden books few are more useful than

**"TREES, SHRUBS, VINES AND  
HERBACEOUS PERENNIALS."**

It contains just such information as one requires in making the best selection of varieties and to care properly for trees and other plants.

Over 400 pages, 2096 descriptive classifications, 59 full page illustrations. Helpful lists and planting plans.

Price \$1.50 Postpaid.

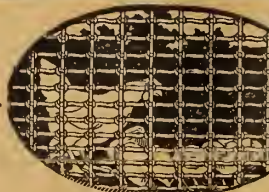
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Both together for June only .. \$1.25

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1 new yearly subscription  
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Total ..... \$2.50  
All three for June only ..... \$1.50

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2 new yearly subscriptions  
(Fruit or Floral Ed.) ..... 1.00  
Total ..... \$2.50  
All three for June only ..... \$1.50

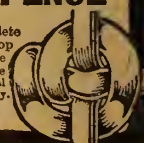
**The Canadian Horticulturist  
PETERBORO - ONTARIO**

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**A Real Fence—Not Netting**

Strongly made and closely spaced—making it a complete barrier against large animals as well as small poultry. Top and bottom wires No. 9—intermediates No. 12 wire—made by the Open Hearth process which time and other tests have proven to be the best. Send for catalog. Ask about our farm and ornamental fencing. Agencies nearly everywhere. Agents wanted in unassigned territory.

**The Banwell-Hoxie Wire Fence Company, Ltd.,**  
Winnipeg, Man., - Hamilton, Ont.





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# THE CANADIAN HORTICULTURIST

Vol. 41 - No. 8  
AUGUST - 1918.

TORONTO, ONTARIO

50c. per Year  
3 Years for \$1.00



## FRUIT EDITION

DEVOTED TO CANADA'S COMMERCIAL FRUIT AND VEGETABLE INDUSTRY.  
ADDRESS ALL CORRESPONDENCE TO OFFICE IN

PETERBORO, ONT.



## "PRODUCE AND SAVE"

TO-DAY — PAPER IS KING — WOOD HAS BEEN DETHRONED AND PAPER REIGNS

See our Exhibit in the Horticultural Building at the Canadian National Exhibition, August 26th to September 7th—

### COLLAPSIBLE CORRUGATED PAPER FRUIT BASKETS

3, 6 and 11 Imperial Quart Sizes. Our Baskets fully comply with the Government Inspection and Sales Act.

### COLLAPSIBLE CORRUGATED EGG CRATES

WITH NEW PATENT FILLER, Made in the following sizes:—1, 2, 3, 6, 12, 15 dozens.

### COLLAPSIBLE CORRUGATED BUTTER BOXES

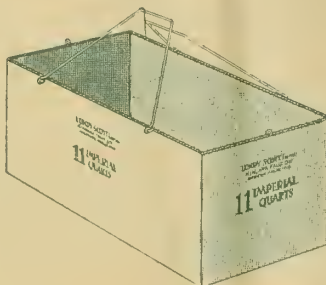
Made in the following sizes:—3, 5, 10, 20, 40, 45 pound.

Every person in the Dominion should be interested in this New Industry.

Note the Place of our Exhibit—**HORTICULTURAL BUILDING**

A. B. SCOTT, Limited

NIAGARA FALLS, CANADA



## Firstbrook Bros.

LIMITED

### BOXES

AND

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SINCE 1867

### FRUIT BOXES

IN SEASON

TORONTO - CANADA

## This Month

We want early varieties of

### Plums, Peaches & Canteloupes

in any quantity

If you want to dispose of your crop at the best prices, we invite you to make use of our service. Our long connection on the Toronto market has given us wide experience. We know just where to place consignments. We can and will sell with entire satisfaction to yourself, all the

### Fruit and Vegetables

you ship to us.

*If in doubt, ask your Banker about us. He knows. Send for shipping stamps.*

## WHITE & CO., LIMITED

Front and Church Streets, Toronto, Ont.

Wholesale Fruit Importers and  
Commission Merchants

Canada Food Board License No. 277.



# The Canadian Horticulturist

Fruit Edition

Vol. XLI

TORONTO, AUGUST, 1918

No. 8

## Fruit Marketing Problems

C. S. Thompson

**N**EVER in the history of the Ontario fruit industry have greater problems confronted our growers. On the one hand is the desire of every grower to produce as much fruit as possible in response to the demand for greater production, and to help out the food situation; on the other hand is the memory of the past three poor years, the great shortage of labor, greatly increased cost of spraying materials and other accessories, and restricted markets.

With only two markets, those of Ontario and the west, it is evident that Ontario fruit growers will have to adopt better and more progressive methods to meet the situation. In the first place, there should be an increased consumption by the public at home. This object is being promoted by the Food Controller, whose efforts might be supplemented, if crop conditions warrant it, by an advertising campaign somewhat similar to the one that was inaugurated two years ago through the newspapers, and to the campaigns which have been conducted by the British Columbia growers in the prairie provinces.

To compete successfully with the high grade fruit which reaches Ontario from British Columbia and the Yakima Valleys, even in spite of the increased tariff, it seems as though our fruit growers will have to adopt more stringent standards of practice and live up to those standards. The recent amendments to the Fruit Marks Act will aid greatly in this direction. Fruit growing has reached the point in Ontario where the fruit grower who is part farmer has to make a choice. Because of the labor shortage and other factors, he either has to go in for fruit growing as a profession or else do away largely with his fruit, other than for home and local use, and devote more of his time and attention to other branches of agriculture. Changing conditions have made fruit growing largely a matter of scientific production. If we want high grade fruit and the kind that will compete with the very best of imported stock, we will have to go into the matter of production thoroughly.

It is a good thing sometimes to get the ideas of the other fellow. Recently I was interested by a conversation I had with Mr. W. J. Oke, of Peterboro, a wholesale fruit dealer who has had a wide experience also as a retailer, and thus knows the attitude of the buying public as well as of the trade.

The first point he raised was one that has often been raised before, but never fully answered, namely: Why don't Ontario fruit growers box more of their apples? "We have," he said, "in Ontario, apples that are second in quality to none, and many varieties have a fairly good color. If they were properly graded, wrapped and packed in boxes, they could be sold just as well as British Columbia or other imported apples, even although they may not be as highly colored. There are thousands of people in our cities who would be only too glad to buy a box of apples, particularly if they knew they were good old Ontario varieties, where now they scarcely buy any, because, living in flats and rooms, they have no facilities for storing larger quantities such as a barrel."

One complaint which Mr. Oke made was that in buying Ontario fruit, and this applies especially to apples, he cannot depend on getting properly packed and graded fruit, except from a very few growers. As a result of long experience, Mr. Oke has lost confidence in the average pack of Ontario apples. This is partly because only a small part of the crop is packed co-operatively. When I asked him what he would suggest, he replied that Ontario growers should do as the British Columbia growers do. "They should co-operate more, standardize their grades and be willing to accept orders earlier in the season." Last year in May, when the orchards were just in bloom, he wrote to a British Columbia fruit grower for quotations on a couple of car loads of the coming apple crop. The quotation came by return mail and an order was sent away immediately. "By the time my order arrived," said Mr. Oke, "and this is the point I want to make,—the grower was already booked to full capacity, orders being, of course, contingent on the crop. I would not for a moment think," said he, "of placing such an order with most



Fruit grading machines are helping to solve the labor shortage. The machine used by Rev. Father Leopold, of La Trappe, Que., is here shown. Were more of them used they would prove a factor in improving the fruit pack.



Ontario growers, because few of them produce enough, and therefore I could not depend on getting either the quality or the proper packing. In Ontario, with a few exceptions, because of the conditions mentioned, I only buy when I see the apples."

Another idea which Mr. Oke advocated was the employment of a messenger service on fruit cars for medium and long hauls. This would apply only in the case of tender fruits. Mr. Oke claimed that this is the only method of ensuring that the fruit will be delivered promptly and in good condition. "The waste of fruit on the railroads all the year round," he said, "is prodigious, and yet we are asked to conserve it. No doubt the railroads are confronted by big problems, shortage of labor, and a heavy demand on their rolling stock; but perishable goods should have first consideration, especially all kinds of foodstuffs." In mentioning this point, Mr. Oke said that the waste by cold storage plants is but a tithe compared with what is wasted on the railroads. As one instance, he mentioned three carloads of lemons that were sent to Toronto last winter in one shipment. The railroad was asked to go to any necessary

expense to keep them in good condition, but this was not done, and as a consequence they were frozen and rendered worthless. No doubt the railroads would have to make good the loss, but that would not restore the waste of a valuable product.

A large fruit house in New York employs a messenger service on fruit cars. Mr. Oke buys all the fruit he can from them, as he is sure that when he orders a carload of fruit it will reach him in three days from New York. The shipments of other firms without this service often are nine and ten days on the road. A great advantage is that when the car reaches Buffalo, the messenger opens the car, takes the temperature and the condition of the fruit, and wires the information to the consignee. Thus the buyer knows the exact condition it is in and how it should arrive, and he is then in a position to dispose of it as its condition warrants. Of course, the service costs more, but buyers prefer to meet the extra expense that they may have the satisfaction and protection it affords. Mr. Oke suggested that the local fruit associations during the tender fruit season should employ at least a limited messenger service.

Lignan Blanc.  
Liebert.—Nearly ripens.  
Madeleine Angevine.  
Madeleine Royale.—Ripens in some seasons.  
Muscat Noir.—Does not ripen.  
Pearl of Casaba.—Ripens very early.  
Peuse (Malaga).—Does not ripen.  
Portugais Oben.  
Precoce de Malingre.—Ripens in some seasons.  
Sauvignon Jaune.

In addition to the foregoing a number of varieties were imported from France more recently, none of which have fruited. The best and most promising variety for parts of Canada where the season is as short as at Ottawa is the Pearl of Casaba, a Hungarian variety. Not only is this very early, but it is of good quality and one which is strongly recommended for trial. Following is a description of the fruit:—

Pearl of Casaba: Bunch, length, 5 inches, breadth, 3 inches; form compact; shoulder slightly shouldered; berry, size medium; form round; colour, yellowish green; bloom thin; skin moderately thick, moderately tough; seeds few, usually two, often none; flesh tender, juicy; flavour sweet, sprightly, muscat-like, good; quality good; use, dessert; season very early; evidently not a good keeper. General notes: A very early European grape of good quality.

## European or Vinifera Grapes Grown at Ottawa

W. T. Macoun, Dominion Horticulturist

THE European or Vinifera grapes have been very little grown in Canada. The experience in the Eastern States in attempting to grow them was so discouraging, that, doubtless, the old settlers in the Province of Ontario did not feel very enthusiastic about trying them, and as new, vigorous, and hardy varieties of American origin began to be introduced in the early part of the 19th century, there was little inducement to test them. The European grapes must be covered with soil in winter, but, apart from that, they are treated much as the American varieties. They are not recommended to be grown commercially, but for home use only. The oldest record of the successful cultivation of a European grape vine in eastern Canada that we have is that of a vine in the garden of a citizen of Perth, Ont., which is said to have been introduced from Italy nearly ninety years ago. This is an early green grape of the Sweetwater group. This variety is now growing at the Central Farm.

The first experience with the European or Vinifera grapes at this farm was in 1900, when cuttings of a variety called "Bonne Madame" were obtained from Mr. D. Matheson, Ottawa, Ont. This variety was obtained by Mr. Matheson from a Roman Catholic institution in Montreal, and it was supposed to have come from Italy. It also is of

the Sweetwater group. Two vines of this grape were planted in the vineyard in Ottawa in 1902, and the first fruit was produced in 1905. This variety was found to be one of the earliest ripening sorts in the vineyard, and has continued to be so.

As it was thought that there might be other Vinifera grapes which would ripen at Ottawa, a number of varieties were imported from France and Germany in 1909, and the following is a list of these with notes as to whether they ripen at Ottawa or not:—

Black Alicante.—Does not ripen.  
Black Hamburg (Frankenthal).—Does not ripen.  
Bonne Madame.—Ripened every year until recently when old vines were destroyed, and the new ones are not in bearing.  
Buckland Sweetwater.—Ripens in some seasons.  
Chasselas Dore de Fontainebleau (Weisser Gutedel).—Nearly ripens, ripens in some seasons.  
Chasselas Gros Coulard.—Ripens in some seasons.  
Chasselas Rose Royale.—Does not ripen.  
Chasselas Rouge (Roter Gutedel).—Ripens in some seasons.  
Chasselas Vibert.—Nearly ripens.  
Chasselas Violet.—Nearly ripens.  
Foster White Seeding.—Nearly ripens.  
Früher Blauer Burgunder.—Does not ripen.  
Früher Leipziger.—Ripens in some seasons.  
Früher Roter Malvasier.—Does not ripen.  
Gamay de Juillet.—Ripens very early, but is very small and not desirable for eating.  
Grandiska.—Does not ripen.  
Gromier du Cantal.—Does not ripen.  
Gros Colman (Dodrelab).—Does not ripen.  
Gros Dore.—Does not ripen.

## Seasonable Reminders

C. F. Patterson, Guelph.

The "Fruit Marks Act" protects the consumer only, but the "Integrity Act" protects both consumer and producer.

If apples are too thickly on the trees, it will still pay to thin them.

Do not place plums or peaches when wet in the basket, as this hastens decay.

Keep an open eye for the Yellow-Necked Apple Caterpillar and the Red-Humped Apple Caterpillar. If they make an appearance, cut out nests and burn.

Remove and destroy all nests of the Fall Webworm as soon as noticed.

Do not put into the basket a peach that you would not eat yourself.

"Handle with care" is the motto which should be borne in mind when picking and handling fruit.

Do not forget that strawberries require cultivation until late fall.

To rise requires years,

But to fall—

Demandeth only moments.

Are you going to defame the good name of your Association for the sake of a few paltry dollars?

This is a good time to remove and burn all old canes of raspberries and blackberries.

To free the young foliage of strawberries free of rust, give frequent sprayings with bordeaux.

See that the celery gets an abundance of moisture and good cultivation.

Ears of sweet corn can be removed easily by bending down the ear with a slight side twist.



# Cherry Growing in British Columbia

Chas. L. Shaw, Victoria, B.C.

**C**ROP conditions were favorable this year, and through various preventive measures the cherry growers of British Columbia managed to reduce destruction by disease to a minimum. Summerland expects to beat all records in its cherry production this year, and within a few days it will have sent its seventh and last car rolling away to the markets of the prairies.

Past experience in British Columbia orchards has shown that sweet cherries are especially liable to suffer from brown-rot. Death of twigs and the formation of gummosis cankers are often a result. The principal source of the disease each year is the dried-up rotted fruit. Whether this is left hanging on the trees or near the surface of the soil, it produces large numbers of spores in the spring. It has been found of first importance to prune or knock off all the fruit remaining at the close of the season and burn it. This involves a good deal of labor, but it pays. The "mummies" must be either burnt or buried deep enough to prevent them from being brought again to the surface.

Good-air drainage for the orchard and sufficient pruning to ensure ventilation to the interior of the tree are also important. With the larger fruits thinning should be practised, since the rot often starts where two fruits touch. Spraying is also essential. Winter-strength lime-sulphur should be used, and other sprayings are given when the shucks have been pushed off the developing fruit, and about a month before the fruit is ripe, with an intermediate one if necessary. It has been found that ordinary lime sulphur is injurious to the foliage and that 2-3-40 Bordeaux fills the bill. Brown-rot has done most of its destruction in the Lower Mainland, the interior being practically free from its ravages.

Various causes may result in "shot-hole" among cherries and other stone fruit. Usually, however, the disease is not serious enough to require special treatment. A dormant spray of lime sulphur, followed by sprayings of 2-3-40 Bordeaux mixture, has proved effective.

The cell walls of stone-fruit in British Columbia are liable to undergo a change into a gummy substance which exudes at the surface. This is known as gummosis, and it may be caused by a mechanical injury, insect punctures or borings, by winter injury or, more rarely, by fungus or bacterial infection. It may, however, be spontaneous, especially in trees that have made a forced growth, due to too much water or nitrogenous fertilizer, or both. Such trees

are also more liable to extensive gumming as a consequence of any of the injuries mentioned.

Sweet cherry trees are often victims of gummosis, although the virulent bacterial form of the disease, so destructive in some of the southern States, is almost unknown in British Columbia. Sweet cherries should have a well-drained, open sub-soil. Gumming very often follows where cherry trees have been winter-injured. The proper cultural methods and the growing of adaptable varieties for the section is of the greatest importance. Where cherry

trees have become winter-injured on the trunks, a good practice is to slit open the bulged part with a knife. This will allow the air and sunlight to enter and prevent fermentation taking place. Where the bark on the trunk has cracked or the bark heaved away from the wood a few small nails should be driven in to bring it back and hold it in place. Large cankers should be cleaned out, cutting away all diseased tissue until a sound surface is exposed. Corrosive sublimate may be used to disinfect the wound, using one to 1,000 parts of water. These methods have been followed by the most successful cherry and stone fruit growers in the Summerland section for several years and the provincial government's experts are recommending the same treatment.

## White Grubs and Wire Worms

Dr. C. S. Bethune, O.A.C., Guelph, Ont.

**W**HITE Grubs are the larvae of the large dark brown May beetles or "June Bugs," as they are commonly called, which are familiar to everyone. The grubs breed for the most part in old pastures where the sod has not been broken up for some years. When fully grown they are thick, fat creatures, white in colour, with the body partially curled up and the last segments of a darker hue from the food showing through the skin. They feed on the roots of the grass, and when this has been plowed up they attack whatever plant may be grown. Three years are spent underground, then the beetles appear, often in great swarms, in the early summer and devour the tender fol-

iage of trees and shrubs. At this period it would be possible to reduce their numbers by spraying the trees they frequent with Paris green and by employing boys to search for and kill them. After buzzing about in the early evening they settle down to feed, and when daylight comes they hide away underground where the soil is loose and under grass or rubbish about fences and buildings.

The grubs, being underground feeders, are very difficult to control. A great variety of experiments have been made with chemicals of many sorts, but none has proved successful. The only method of control is the adoption of a system of rotation of crops. No field should be



Producing two crops in a south-western Ontario peach orchard.



left in grass for more than three years. An old pasture when broken up is often found to be full of these grubs, and they will attack the roots of any plants that are sown in place of their ordinary food which has been removed. Corn and potatoes will suffer severely, but clover is least affected by them and may be seeded down with rye. After the second year any crop will usually be safe. Deep ploughing in October before the weather becomes cold will expose the grubs and destroy many. Pigs and poultry, crows and other birds and skunks greedily devour them. Where an old field is found to be badly infested, it is a good plan to turn in some hogs; they will soon root out and eat up all the grubs. If the field is large it would be well to confine them with hurdles to a small portion at a time and when that is cleared move them on to a fresh feeding ground.

Wireworms are the larvae of click beetles, so called from their curious habit of springing up in the air with a "click" when laid upon their backs. The beetles are long and narrow, rounded above, with very short legs, and usually dull gray or black in colour. The grubs are long and round, with a very hard skin, from which they get their name of Wireworms, and yellow or whitish in colour. Their life history is very similar to that of the White Grubs, as they thrive in old pastures and take two or three years to mature. They feed upon the roots of any plants that may be grown where they are, and are especially injurious to corn and potatoes, in the latter of which they often burrow great holes. As in the case of the White Grubs, no treatment of the soil with poisons of any kind has been found effective. There is a prevalent idea that salt will kill them, but this is an entire mistake. The only remedy is a short rotation of crops as in the case of White Grubs. Ploughing in August and cross-ploughing in September will destroy great numbers. Clean cultivation, leaving no weeds or other shelter for the beetles, in fence corners and elsewhere is also of importance. Break up the old pastures is the advice all growers should follow.

## Need More Fertilizers

Dr. A. J. Grant, Thedford, Ont.

The crying weakness of most farm apple orchards is lack of fertility. Heavy crops of apples, whether clean or scabby, take a lot out of the soil, and the trees are bound to show poverty in foliage, with consequent lack of fruit if manure is not applied regularly, in sufficient quantity. If we were obliged to grow one crop year after year on the same piece of land, we would never be able to satisfy ourselves with the quantity of manure applied, no matter how

great our source of supply happened to be, and we all know that anything short of a Herculean effort to keep up fertility would mean a steadily diminishing crop.

The poor old apple orchard is struggling to produce the same crop year in and year out, the average attempts at putting back the fertility are far short of an effort that would do credit to Hercules. It pays well to ship in manure from the larger centres and draw it to the orchards in the winter time. Chemical fertilizers are useful, but in my opinion they cannot take the place of barnyard manure; I like to use both, but the price of the chemicals at present is an important consideration. The only economy that should be used in manuring is to place the material only over the feeding roots of the trees, keeping about five feet away from the trunks in all directions.

## Pear Slugs Common

Nearly every year many cherry, plum and pear trees are damaged by the pear slug. This is a very dark, slightly greenish, slimy slug, which appears in June and again in August, feeding upon the upper surface of pear, cherry and plum leaves. Only the fibrous skeleton of the leaf is left. These soon fall off and the tree is greatly weakened by the loss. Thorough spraying with an arsenical spray as soon as the pests appear is recommended by the Ohio Experiment Station. One pound of arsenate of lead paste (or one-half as much powder) dissolved in 10 gallons of water is the formula recommended.

## Roguing Potatoes

Dr. C. A. Zavitz, Ontario Agricultural College.

The average yield of potatoes per acre in the Province of Ontario for the past thirty-six years has been about 115 bushels. The yields vary greatly. In 1917 there were variations in Ontario from 125 or less up to 700 bushels per acre. People are realizing more and more that for high yields of potatoes conditions must be favorable. It is important to have good fertile soil well cultivated and to plant a liberal supply of seed of the best varieties at the proper time. Seed potatoes somewhat immature, which have been produced in a cool climate, and which are comparatively free from disease, are apt to furnish seed of high quality. Even under these conditions it is well to carefully inspect the seed before planting and to thoroughly rogue the growing crop.

A potato field is rogued by removing the undesirable plants. A thorough roguing of the growing crop once or twice during the summer is one of the most effectual ways in ridding the field

of a number of the potato diseases. This operation would also insure the immediate removal of the weak and unthrifty plants which are sure to produce undesirable seed. Potato growers sometimes go through their fields and remove all plants which are not true to type. When roguing is done with a double object of eradicating disease and of purifying the variety, decided advantages are sure to follow. Thorough roguing is one of the best methods of securing pure, healthy seed of high quality.

## Raspberry Leaf Curl

Raspberry Leaf Curl has been known for some time, both under the name given as well as under the name of Raspberry Yellows. Since the curling of the leaves is the most outstanding feature in connection with the disease, it is preferable to use the term Raspberry Leaf Curl.

The disease affects the leaves and shoots and is often confined to a single bush or part of a bush, some of the shoots being perfectly normal and others with the leaves affected. The affected shoots, instead of producing normal large, broad leaves, bear leaves which are conspicuously small and badly curled downwards. In the early stages this symptom is not so pronounced, and while a small amount of curling may occur then, the disease is more noticeable on account of the yellowing which takes place during the summer because of the unhealthy state of the foliage. Since yellowing of the leaves may be due to a number of other causes, such as wet feet, poor soil, drought, etc., it is best to determine the disease mainly by the Leaf Curl symptoms.

In the advanced stages the canes bear no fruit. When first attacked they flower almost normally, but the fruit is small and dry and shrivels up before ripening, so that little or no fruit is ever produced from an infected bush. Of the three varieties which are commonly grown in the Niagara district, Cuthbert, Marlborough and Herbert, the Herbert seems to be freest from the disease. The other two varieties are quite susceptible, but one rarely sees signs of Leaf Curl in the Herbert.

So far as is known, the disease is not due to any parasitic organism. It apparently belongs to that type of trouble which has been called physiological disease, and could, therefore, be put into the same class with peach yellows and little peach, and the mosaic diseases of tomatoes, tobacco, potatoes, and so forth. No records are available as to how the disease is brought into the field in the first place, nor how it is transmitted from one plant to another. It spreads once it becomes established in a



plantation, and many fine plantations are known to have been greatly injured by the presence of a large number of Leaf Curl plants. If the disease corresponds closely with the mosaic or yellow disease, one would suspect that it is carried either by insects or pruning operations.

Although too little is known about Leaf Curl to advise a sure means of control, one should always remove the affected plants as soon as they show signs of disease. They are of no use in

any case, and are likely to spread the disease to other parts of the plantation. In taking out Leaf Curl plants, one should be careful to get the whole of the root system, otherwise the parts that are left will start to grow and produce new shoots which will also show Leaf Curl. It is possible that some of our Leaf Curl originates from nursery cuttings, and some care should be taken when setting out a new plantation, to avoid this disease.—Field Laboratory, St. Catharines, Ont.

## Marketing Basket Fruits

P. J. Carey, Chief Fruit Inspector, Toronto

THE advertising of basket fruits has not met with the success expected. In the west where advertising has worked wonders, the situation is different from ours. There the packing is taken out of the hands of the growers and superintended by the companies, while in our case there is no control as to uniformity or quality of pack. I am a firm believer in advertising, and in the attractiveness of packages, and for that matter in a fancy label on the package, if under proper control, but where such label gets into the hands of unscrupulous packers, such advertising instead of being an advantage, becomes a boomerang. The best advertisement is an honest package of high quality, and plain marking is safer than a gaudy label, unless you are sure of the contents of the package. The grower who is depending on a loud appearing label, or some such device, to push the sale of his irregular pack, had better get out of the fruit business. The consumer who purchases a package of this kind will not soon forget it, and it will have a killing effect on the sale of the many excellent packs that will appear later on the market.

### Pre-Cooling.

Pre-cooling, or at least shipping in iced cars, is one of the most important phases of fruit handling. I have had an opportunity for fifteen years to observe the condition of fruit on its arrival in Toronto, and it is nothing new to discover that many of the box cars showed a temperature of 90 to 100 degrees. In such cases the fruit has often entered into the first stage of decay before being taken from the cars. Such fruit held for a day or more is sure to give poor satisfaction to the consumer.

Growers say that they are not making any money now, and, of course, will be slow in taking up anything that will involve an increased expenditure. Nevertheless, I draw their attention to the importance of landing their fruit in

such condition as will tend to lengthen life. Using iced cars, as much as possible, would create a marked improvement in the shipping of tender fruits.

To show the wonderful results that may be attained by pre-cooling fruit, I would like to cite one case in point. The Department of Agriculture at Ottawa undertook to ship a number of packages of peaches from the St. Catharines district to the London Exhibition. I assisted in the work of selecting and packing the fruit. We, of course, picked firm specimens, but ripe enough to show plenty of color. The fruit was placed in an iced chamber over night, and then packed carefully in cases, and, of course, was placed in cold storage all through the journey. Those who had charge of the shipment at the other side stated that the fruit landed without showing one decayed specimen. It was on display on plates for at least two weeks. To prove its

quality, a case was sent down to the fruit market and sold, each peach selling for a shilling. Had this fruit been packed warm it would not have arrived in a sound condition.

## Marketing the Berry Crop

L. J. Farmer, Pulaski, N.Y.

When marketing your berries use good baskets and substantial crates. The tendency now-a-days is to use flimsy crates and baskets. It does not pay to save a half cent a quart on your package and lose five cents a quart on your fruit. The 32 qt. or bushel crate is the best ever. We also make up small crates holding 8, 12 and 16 qts. each, for our local parcel post trade. We also put cotton wadding over the top of the top row of baskets, to keep the berries from smashing.

Berry picking seems to develop the worst traits of a person's character. It cannot truly be said that there are tricks in all trades except picking berries. A man who will successfully handle an indiscriminate bunch of berry pickers without losing his temper and cussing some one, deserves a place at the right hand. For thirty-four years I have been studying the question. I haven't solved it yet. One of the worst things to contend with is to get some pickers to fill up their baskets so they will hold out when fixed and placed into crates. The pickers are continually conveying the impression that they are giving you extra measure. How would it do to weigh a full crate of berries and find about what an average quart of strawberries would weigh?



Orchard meetings have been held for years in Nova Scotia to promote improved methods. The illustration shows one held in King's county.



Then weigh the picking stands or handies and have them all of uniform weight. When the picker brings in a handy, place it on the scales, deduct the weight of the handy and give the picker credit for the net weight of the berries and baskets, paying by weight instead of measure. Suppose an average four quarts of berries weighed 5 lbs. If the picker brought in 6 lbs. it would make no difference to him, because the total number of pounds for the day would be added up and divided by five, to show the number of full handies or quarts picked. As different varieties vary somewhat in weight, it would be necessary to arrive at some

average for all.

We numbered each berry picker the past season. We put their name and number down on a sheet of paper each day, and gave them each small slips of paper with their number on the slips. When a picker brought or sent in his four quart handy of berries, he placed a number on it. In this way we were able to tell all about who picked that handy of berries. As a result, the standard of picking was raised. We found no leaves or rubbish put in just to fill up, there were less green and rotten berries, fewer hulled berries, and similar efforts to appropriate what they had not earned.

## Potato Diseases

George O. Madden, B.S.A., Dept. Agriculture, Toronto

**P**OTATO diseases can be divided into three great classes. First are those common diseases like ordinary scab and late blight, which are present every season more or less, and cause considerable loss to many growers. Second are those diseases which are noticed when cutting the tubers for seed. Such seed, if planted, will reproduce the disease in the tops, thereby preventing the formation of the potatoes. Black Leg is a good example of this class of disease. The third are of least importance as regards Ontario, but have been becoming more prevalent during recent years. They include the Mosaic and Leaf Roll. These diseases should be looked for, and those plants showing the disease should be promptly removed.

The simplest method of describing potato diseases is with reference to the part of the plant affected, whether it be the foliage, the stems, or the tubers themselves. The following list will give some idea of the various diseases of potatoes, the parts attacked, and how to control them:—

### 1. DISEASES ATTACKING THE TUBERS\* (see June issue); 2. DISEASES ATTACKING THE STEMS.

**Black Leg.**—This disease attacks the stems and tubers. Avoid planting diseased tubers, and when tops are developed, rogue the field for affected plants and remove.

**Little Potato.**—This is caused by disease which is carried in both seed as well as the soil. It is prevented by inspecting the field and removing diseased plants.

**Spindling Sprout.**—Caused by degeneracy of plant due to poor seed. Rogue field in summer.

### 3. DISEASES ATTACKING THE FOLIAGE.

**Late Blight\*.**—This is same organism which causes the late blight rot in the tubers. This disease is spread by means of the tubers being affected when planted, as well as by the wind blowing the spores to other plants. Spray with Bordeaux mixture (6-4-40) at intervals of ten days at least four times during the season. Also rogue the field for diseased plants and avoid planting diseased tubers.

**Early Blight.**—This disease is often troublesome in many places, and is caused by a fungus which is spread by means of the seed used. Plant remains also carry the disease. Control by spraying the plants with Bordeaux mixture (6-4-40) as well as rogueing the field as in the case of late blight.

**Potato Wilt.**—Due to a disease which is carried in the seed. The practice of removing affected plants during the summer is advised.

**Leaf Roll.**—Spread by means of the seed tubers. Watch for tops showing rolling of foliage and remove such plants.

**Mosaic.**—Becoming more prevalent lately. It is a physiological trouble which caused the foliage to become mottled and prevents normal yield of potatoes. Remove affected plants as soon as seen.

**Curly Dwarf.**—Not caused by a fungus, but due to degeneracy in seed. Remove plants appearing with foliage curled.

**Tip Burn\*.**—This is caused by dry, hot weather conditions, such as prevail in July. The tops, if badly attacked, dry up completely. Most seasons it is present, but does little harm unless extreme drought conditions prevail. It is not carried by seed.

## Selecting Show Potatoes

Dig when the ground is dry.

Carefully wrap each tuber separately in paper.

Place in shallow one-layer boxes and store in a dark cool place.

Take out just before time to send the tubers to the show.

Clean them with a soft brush, removing every particle of the dirt.

Avoid pressure in order not to injure the tubers.

Do not wash; tubers wilt if washed and have an unnatural sheen.

Pick out a model of the type, size, color and eyes of the variety to be exhibited.

Make the rest of the lot as nearly like this model as possible.

See that the skin is clean, smooth and free from sunburn, having a desirable luster and bloom and being free from all blemishes of all sorts.

## Packing and Grading

Another difficulty that we have to contend with at the present time and one which causes much trouble in packing houses, is the picking of apples out of season. By this I mean that many are picked before they are ready. In many cases late winter varieties are picked at the same time as earlier varieties. This causes a congestion at packing house, as the earlier varieties are packed first. This means that the late apples will have to remain in the packing house for some time, thereby taking up space and not allowing the grower to use the orchard boxes they are in. In some cases these late apples are packed before their time and are shipped out. This gives them a bad reputation. Much of this trouble is caused by growers not knowing when to pick certain varieties. A remedy for this is for each local or shipping association to notify its shippers when to pick certain varieties.

All of the large shipping associations in the states to the south have field inspectors who notify growers when to pick and deliver apples that are wanted. No grower is allowed to bring in his apples until notified by these inspectors. I believe this system would be of great benefit to apple-growers as well as to growers of other fruits in British Columbia. The British Columbia Fruit Growers' Association have issued a booklet which is a great benefit to fruit consumers. It gives the dates that each variety of fruit is in season, thus giving the consumer the information when these fruits are at their best and when to buy. The practice of putting fruits on the market out of their season often gives the consumer a wrong impression of their value as well as quality.

\*—An asterisk marks most important diseases.



# August Work in the Vegetable Garden

H. J. Moore, Queen Victoria Park, Niagara Falls, Ont.

**D**URING the trying month of August the crops in the vegetable garden should receive careful attention. The most important crops of our gardens are those which we are growing for winter and spring use. Among these are potatoes, carrots, swede turnips, parsnips, beets, white field beans and onions. Keep the cultivator working on all possible occasions on the plots containing these crops, even to the extent of neglecting other less important ones, or those which are approaching maturity, if your time is limited. If your soil is dry and hard, water if possible along the rows during the evening, the next day cultivation will be easy. Try it. Cultivate after every rain; for by moist soil your labor will be greatly minimized. It must not be understood that the writer advocates a general practice of watering all crops, as during a season with a normal rainfall cultivation will suffice to conserve plenty of moisture for their use. During dry weather, however, the greatest advantage will accrue through the judicious use of the watering can or hose.

## Onions.

Onions from sets, or transplants from seeds, which were sown inside early in the spring, will now have developed to a fair size. By a little special treatment very large bulbs may be produced. Take two or three shovels full of dried chicken manure, sheep manure, or cow manure, whichever may be handy, and place it in a burlap sack and immerse the sack in eight or ten gallons of water in a barrel. In the evening stir the sack and when the water is greatly discolored, use it when diluted with five parts of water along the onion rows. A weekly application of this kind will in many instances favor the development of splendid bulbs in gardens where in other years onions worth the name were not produced. Cultivate between the rows, but not so close to the bulbs as to loosen the roots. This would be very harmful, as onions have not the power to re-establish themselves like many crops when their roots are disturbed. Water onions carefully, avoid a too moist condition of the soil, and when they approach maturity, depend upon cultivation alone to hold the necessary soil moisture.

In some localities this year the green fly (*Aphis*) is very troublesome and has done considerable damage to the foliage of potatoes. The fly is a sucking insect, and, therefore, is not destroyed by arsenical poison like paris green or arsenate of lead. The best way to remove it is by forcible spraying from the hose.

Where this cannot be done, a spray composed of one teaspoonful of nicotine to a gallon of water will be found effective. The nicotine may be obtained at seed or drug stores. Kerosene emulsion when properly prepared is also sure death to the green fly, as however the kerosene if not properly emulsified will work havoc with the foliage, the novice had better leave it severely alone.

Late potatoes will now or shortly require earthing up. Prior to doing this cultivate between the plants and rows. Even if the first earthing up has been done, it will pay to cultivate and break the soil finely before it is finally drawn up along the rows or hills, as the case may be. If just before drawing the earth to the plants mixed chemical fertilizer at the rate of one pound to forty plants is applied, the crop will be greatly stimulated. Where, however, the plants are vigorous and the foliage is very heavy, do not apply any manure which contains nitrogen.

## Carrots and Parsnips.

These are deep rooting subjects, and require deep cultivation, for not only is it necessary to hold the moisture in the soil, but it is equally important to admit oxygen, as without it in the soil the formation of plant foods cannot take place. Stir the soil deeply and your chances of a splendid crop will be greatly

enhanced. Neglect this and your crop, to say the least, may be but mediocre.

## Beans.

Beans, especially the white varieties for winter use, should be cultivated as long as it is possible to work between the rows or until such time as the pods begin to ripen. Exercise care in this work, and keep the prongs of the cultivator two inches or so away from the plants, as the fibrous roots of the beans extend to the surface and are easily damaged. Water the rows in dry weather.

## Late Cabbages.

Late cabbages for winter storage should not be neglected, either in the matter of cultivation or of watering. If weak growth indicates impoverished soil, sprinkle one-half ounce of artificial fertilizer around each plant, and water it in or occasionally apply the manure water advocated for onions. If discretion is used cabbages worthy of the name will be produced. During a drought cabbages grow very little. In this not too vigorous state they are especially susceptible to insect attacks. Water them and keep them growing. If attacked by aphides, these may easily be removed by water forcibly ejected from a garden syringe or from the nozzle of a hose. The nicotine solution ad-



A bed of Ginseng as grown by a grower in Peterborough, Ont., who has met with success in its cultivation.



vised for potatoes will quickly kill the insects. It is simply necessary that it touch their bodies, so do not be alarmed if it does not adhere to the cabbages. Those cultural instructions apply also to Brussels Sprouts, Cauliflowers, Borecole or Kale, and Kohl Rabi.

#### Celery.

If at this time your celery suffers from drought it will be practically worthless, therefore as often as the soil becomes dry water it thoroughly. A good way is to flood the trenches, or if grown by the surface method to water it by means of a watering can. During a season celery will require two or perhaps three earthings. When the final one is performed only the leaves at the end of the stalks should remain uncovered. Each time when earthing up the plants, close the leaves together by means of the hand. This will prevent the soil from falling into the centres. The leaves should not be pressed so close together that the central stalks cannot develop. It is very necessary that these continue to grow, but they must grow in darkness, otherwise they will not bleach. The object of earthing is to exclude light.

#### Still Time for Sowing.

You may still desire to sow seeds of quick maturing crops, as radishes, lettuce and cress. There is still time to obtain another crop of these. If the soil is very dry, soak it well and dig it the following day, rake it finely and sow the seeds before it loses the moisture. Unless some shade is afforded the seeds will have a hard time in the hot August sun, therefore make a simple wooden frame about nine inches high, and stretch over it sufficient cheesecloth or similar material to shade the seed bed. The seeds will germinate quickly and evenly, and when the seedlings are well through the soil the shading material may be removed. Good lettuce and radishes will, however, develop when shaded by a layer of cheesecloth, if the latter is removed to allow of thinning, cultivation and watering. In fact lettuces so grown have not the bitter taste so common in leaf varieties. When watering the seedlings, do not splash on the water with the hose. Use a can with a fine sprinkler, and give a slow but thorough soaking. Do not cause any flooding of surface. The water should sink in as fast as it is applied.

much nicer than canning in cold water, and one can store such quantities in very small space.

The green beans and cabbage have a brown appearance after they are dried, but when soaked in cold water for a couple of hours before cooking will be just as plump and firm and white as when picked fresh. All green vegetables, such as spinach, beet leaves, Swiss chard, asparagus, can be dried in great quantities. In fact, carrots, parsnips, turnips, onions and potatoes, dried and mixed for a soup mixture, is just the thing to store for the busy woman.

It is not necessary to cook any of the vegetables before drying, but with corn, it should be boiled about three minutes to set the milk. Anyone who has had success in drying corn would much rather have it than the canned product. Few instructions are necessary for drying vegetables. String, work and drain beans, shred the cabbage, slice carrots, beets and other roots, wash rhubarb (do not peel), drain and cut in half inch pieces. Wash all greens, drain, spread on rack, or in oven on trays. Apples, peeled, cored, cut in rings or eights. When preparing apples and pears, if you dip them, after being peeled, into a very weak solution of salt and water (one teaspoonful to three quarts), they will remain white when dried. Do not dry the fruit too crisp. Apples, pears and peaches should be rather tough than hard. Drying the vegetables will be very popular this season, as the experiments have proved so successful, and the expense is so much less than canning.

Having the soup mixture already prepared saves so much time, for sometimes one is in a hurry, and by just adding a couple of cups of the dried vegetables you will have all the flavor of the fresh ones. In these serious times each housewife should do her share in drying and canning. Remember, Germany has great storehouses of the dried products. The first year of the war they had only a few of the dehydrator plants, but they have hundreds of them now, and while we are hoping for the war to soon come to an end, we must save every bit of food for our dear lads overseas.

## Drying Fruits and Vegetables

Mrs. Woelard, Toronto

**I**N pioneer days, drying was about the only method of preserving the fruit and such few vegetables as were grown. The early settlers picked the wild berries and plums, of which there were great quantities, and drying in the sun was the method of curing. As many had no stoves, a very common way was to place the fruit on trays or dishes on the roof of the little log house. Later, corn, peas and apples were dried in the same manner. Apples were usually cut in eights and strung on thread and hung from the eaves in the sun. The fruit or vegetables were always removed before the dew moistened them, and placed out again in the morning.

Then poles were hung from the rafters before the great fireplace, and pumpkins and squash were cut in rounds and hung over the poles. Meat and fish were also cured in this manner, after being in brine. Later, when stoves were introduced, the people used the oven for drying, some using racks over the stove.

All these methods are in vogue today. Nothing is nicer than the sun-dried fruits if properly cared for during the period of drying. Every housewife can dry all the vegetables and fruits for home use on a simple rack hung over the kitchen stove—

one 18 x 18 in., three or four tier, made of slats or laths, and having fine galvanized wire tacked on each frame. Bore a hole in each corner of wood, string frames together with good strong twine, placing each frame far enough apart to allow of easy handling of product. About nine inches is close enough, and do not hang frames too close to the stove; in fact, they should hang high enough to be out of the way of cooking utensils on the stove, and one should be especially careful if using a gas stove, as it heats so quickly. Utilize the heat of stove when cooking, so that no extra will be necessary, as the saving of fuel has to be considered this year. All vegetables and fruits may be dried on this rack.

For beans, wash, string, drain, cut in two pieces or leave whole as desired, place on rack, using the day's fire for cooking, and leaving over night, as there is always some warmth in kitchen. Everything will dry nicely in 24 hours, and be ready to place in containers or sacks in the morning. Sugar bags, salt bags, or any cotton bags will be the proper thing in which to store, as they should not be airtight, and they usually dry a little more when hung up in these bags. If you have not tried drying rhubarb, do so this season, as it is

### Tomato Culture

A. H. MacLennan, Vegetable Specialist,  
Dept. Agri., Toronto.

If you are growing tomatoes to a single stem, be sure to remove all side shoots before they become of any size. All the extra food which is used in their growth is wasted and the breaking off



of large shoofs injures the plants. When August 15th comes it is well to nip off all growing ends, so that the fruit will finish ripening, also open out the plant, if very thick, to allow the sunlight in.

When first fruits begin to ripen, apply nitrate of soda,—a teaspoonful in a watering can full of water,—to the plants twice a week to make a liquid manure and use it instead. These are more especially valuable after the growth has been stopped.

Keep a dust mulch around the plants. If the weather is very dry, soak the ground around them thoroughly in the evening, then make a new mulch in the morning.

When the first fruit in staked tomatoes are beginning to color, remove one-half of each leaf. This will hasten the ripening. Sunlight is necessary for rapid ripening.

Leave only growth enough on your plants to carry what fruit will ripen before frost. There is no use in allowing more to set than will be of use to you and the fruits you leave will be larger.

## Destroy Plant Lice

Aphids or plant lice suck the juice from the leaves of house plants, garden and field crops, shrubs, fruit and other trees, causing the leaves to curl up or wither and the plant to deteriorate or die. They multiply most rapidly and at this season may appear in great numbers on tomato, potato and other plants and on the tender young growth of trees and shrubs. Unless checked at once they may cause a loss of crop or destroy the plants entirely. They often spread disease from one plant to another.

The aphids are small, soft, green or pink, sucking insects that infest the underside of leaves and the tender growth of plants, causing discoloration and a curling and wilting of the leaves.

They may be destroyed by a spray of 40 per cent. nicotine sulphate diluted with 700 or 800 parts of water to which dissolved soap is added at the rate of two pounds to 50 gallons of the spray, the soap causing the spray to spread and stick to the leaves. The underside of the leaves should be thoroughly sprayed so as to destroy every aphid and prevent an early repetition of the outbreak.

Entomologists of the Ohio Experiment Station recommend a combination of Bordeaux mixture (4-4-50), arsenate of lead (3 pounds of arsenate of lead powder or 6 pounds of arsenate of lead paste to 50 gallons of Bordeaux mixture) to which is added two-thirds of a pint of nicotine sulphate. This spray will kill plant lice, potato beetles, flea beetles, blister beetles and will prevent the blight and leaf diseases of potatoes and tomatoes.

# Achieving Success With Celery and Cabbage

Margaret McLaren, West Chezzetcooke, N.S.

TO grow celery and cabbages is the ambition of every real gardener. Few, however, have any success in producing good specimens of either. Celery is easily grown, and, given properly prepared soil and abundance of fertilizer, cabbages can be brought to great perfection, but not without constant care.

Celery is a late maturing vegetable, and in setting out the plants, which must have been done about July 15th, care must be taken not to bury too deeply. That is, not to cover the heart of the tiny plant with earth. Celery likes moist, heavy land. In cases where such land is not available, keep the ground about the plants, even between the rows, constantly wet. Each week, draw the ground about the little plant, and, when it has grown to a fair size, if the trouble of piling earth well about the stalks to blanch them seems too great, soft, thick paper can be folded gently about each plant, several thicknesses of it, and tied easily, so as not to bruise the stalks. After this is done, taking care to leave the crown of the plant exposed, very fine crisp white celery will reward the worker. Slugs and insects do not bother celery.

Cabbage requires light, rich soil, preferably new ground. And, "all the insect world loves a cabbage," so that constant regard is required to grow good specimens. There is a simple meth-

od of trapping the slugs which infest cabbage. This method was in use in Europe over a century ago, and among farmers' families, all such secrets are handed down from one generation to another. It is very simple and easily done as well. Take some of the little cabbage leaves, rub them well between the hands or warm them in the oven until soft. Then take some fresh drippings or any sort of sweet unsalted grease, put it among the leaves, and, in the afternoon place here and there among the cabbages. Next morning, gather them up, and if there are any slugs about, by this easy method you may "have them to burn."

When cabbages are about a foot high, take nitrate of soda, one ounce to two gallons of water, and use it twice a week for three weeks, putting it around the roots of the cabbages toward evening. The result will surprise you.

Potash is practically unobtainable at present, except in wood ashes. Fortunately, however, the ordinary orchard is not badly in need of this element. Phosphorus may be supplied in the super phosphates, ground bone or as basic slag. It is also well every four or five years to apply a dressing of lime to the orchard. This will keep the soil sweet and assist in breaking down the plant food into more available forms.



A backyard garden at 517 King St. East, Toronto, typical of thousands of others in Canada that are helping to solve the food problem. In this garden are growing cabbage, beans, peas, turnips, beets, carrots and other vegetables.



# The Canadian Horticulturist

COMBINED WITH

## THE CANADIAN HORTICULTURIST AND BEEKEEPER

with which has been incorporated  
The Canadian Bee Journal.

Published by The Horticultural  
Publishing Company, Limited.

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1. The Canadian Horticulturist is published in  
three editions on the 25th day of the month  
preceding date of issue in three editions, as  
follows:

**FRUIT EDITION:** This edition is devoted  
entirely to the interests of the commercial fruit  
and vegetable growers of Canada.

**FLORAL EDITION:** This edition is devoted  
to the interests of amateur fruit, flower and  
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pages of matter appearing in the first and  
second issues are replaced by an equal number  
of pages of matter relating to the beekeeping  
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The subscription rates of The Canadian Horti-  
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### CIRCULATION STATEMENT FOR JUNE.

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Floral Edition .....	5,694
Beekeeper .....	1,348

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Advertising rates, \$1.40 an inch. Copy re-  
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THE CANADIAN HORTICULTURIST,  
PETERBORO, ONT.

## EDITORIAL

### Factors in Marketing

While the average middleman is not an  
angel by any means, nor does he claim to be,  
it is doubtful if any one class in the com-  
munity has been subjected to as much mis-  
informed criticism as those engaged in this  
important class of work. This is because they  
have been subject to attack from two sides.  
Fruit growers feel that they do not receive  
as much for their fruit as they should, while  
consumers are equally certain that they are  
forced to pay more than they ought. Both  
unite in denouncing the middleman.

Everyone who knows anything about the  
wholesale fruit and vegetable trade is aware  
that there is a not inconsiderable percentage  
of dealers who are unscrupulous in their busi-  
ness methods when they think that they can  
"get away with it." So many cases of fraud  
have been detected in the making of returns  
to shippers, the rehandling and grading of  
fruit, and in other similar ways, that there is  
no doubt that these practices have created a  
suspicion in the public mind that accounts  
for much of the criticism dealers have been  
subjected to.

There are some common causes of unfounded  
criticism which it is in the public interest  
should be better understood. There is no use,  
for example, comparing prices paid for fruit  
to-day with the prices paid fifteen or twenty  
years ago, when most of our towns and cities  
were small and fruit was shipped only short  
distances. The greater the distance between  
the producer and the consumer, the greater is  
the cost of getting the article from one to the  
other. The expenses of salesmanship are  
necessarily much heavier when great distances  
must be covered to find a buyer. The prepara-  
tion for shipment, the cost of transportation  
and the expenses of making collections are all  
much greater under such circumstances.

In the handling of perishables such as ten-  
der fruit, the fact is ordinarily overlooked  
that these goods must either be handled in  
small packages by one market man or several  
times by many middlemen. So for one pro-  
ducer to get a given quantity of perishables  
to consumers, it is necessary to grade, pack  
and ship the goods in very small packages.  
If the goods are marketed by several middle-  
men, they must be gathered in comparatively  
small quantities from the producers, made into  
a large shipment, and then broken up into  
small packages for distribution to the con-  
sumers. This involves heavy expense, par-  
ticularly at the retail end, where the goods  
are handled in small lots. The expense also  
of taking care of perishables while they are  
being marketed is great, for they must have  
storage and refrigeration and must be care-  
fully graded by hand and packed in small  
packages. Because of the ignorance of many  
shippers as to the best methods of grading  
and packing, their goods have to be regraded  
and repacked by the wholesaler. The lack  
of uniformity in grades and packages is often  
the cause of heavy expense in the wholesale  
centres through the necessity it entails of re-  
ducing the goods to uniformity in grades and  
packages. The recently enacted Dominion  
Legislation standardizing fruit packages, will  
help to bring about an improvement in this  
respect when it comes into effect. A most im-  
portant factor, and one which is often over-  
looked, is that the amount of business carried  
on by many shippers, wholesalers and retailers  
is so small that their cost of doing business is  
very large, per package, handled. All these  
factors, as well as numerous others that might  
be mentioned, have their effect in increasing

the final selling price of the fruit, without it  
necessarily being the case that any one hand-  
ler is receiving an undue share of the final  
selling price. Recent investigations conducted  
by the Food Controller's department bear this  
out.

The high price of small fruits this year has  
led many city people who have been in the  
position to do so, to run out in their automo-  
biles to surrounding sections of country in an  
effort to pick wild fruit for themselves. City  
people who have done this have found out, in  
many cases for the first time, how much labor  
is involved in picking even only a pail of blue-  
berries or raspberries. Those consumers who  
have had this experience are not likely to be  
so critical of the prices asked for such fruit  
hereafter, as some of them have been in the  
past.

### Grow Small Fruits

The high price of small fruits this summer  
has made it impossible for many city resi-  
dents to put down as many preserves as has  
been their custom in the past. They have had  
the effect also of convincing many people that  
it should be profitable for them to set out a  
few strawberry plants, as well as different  
kinds of bush fruits, in their gardens. The  
Canadian Horticulturist has been informed by  
one nursery firm that the demand for small  
fruit stock this year has been unusually keen.

In the campaign for increased fruit produc-  
tion by means of back-yard and vacant lot  
gardening, it is probable that too much em-  
phasis has been placed on the growing of  
vegetables and not enough on the production  
of small fruits. The result is that many gar-  
dens, particularly those that have been re-  
cently established, are without small fruits of  
any kind. As there is reason to believe that  
the prices of small fruits will be high again  
next year, amateur and even many profes-  
sional gardeners may well make their plans  
now to increase their plantations of small  
fruits during the coming fall. Most small fruit  
bushes require comparatively little care, while  
yielding excellent returns. If you are plan-  
ning to buy, see that your orders are sent in  
early.

During the past two years a great splurge  
has been made each spring on the part of the  
Dominion and Provincial Governments and  
various organizations of one kind and another  
to induce people to undertake the growing of  
more vegetables and fruit. Because the time  
for action at that time of year is short, it  
often is found impossible to look after all the  
work involved as satisfactorily as might have  
been the case had the work been undertaken  
earlier. Growing out of past experience, the  
directors of the Manitoba Horticultural Asso-  
ciation recently decided to urge the City of  
Winnipeg not to wait until next spring to  
receive applications for plowing grass covered  
vacant lots and then proceed to plough these  
out of sod in April and May, but to accept  
applications now and have the land broken  
this summer and fall. While not everyone  
who would like to know now whether or not  
they will be able to cultivate land next year,  
nevertheless a great percentage of those who  
are doing so this year will want to continue  
doing so next year. Many of these people  
are in a position to state so now. The need  
for food will be even greater next year than  
this. Other towns and cities, therefore, should  
follow the example that Winnipeg is likely  
to set.

The list of twenty-five countries and states  
which have adopted flowers as their national  
or state emblems which is published in this  
issue, will prove interesting to those floral en-  
thusiasts who are advocating that Canada and  
even the different provinces should each adopt



official floral emblems. The fear has been expressed that such action might tend to weaken the standing of the maple leaf. This need not be the case. Most countries have characteristics which are represented in various ways. For instance, the rose is recognized as the national flower of England, roast beef as the Englishman's favorite dish, the bull-dog as representing his characteristics of determination and steadfastness of purpose, while the well-known rotund, ruddy figure of John Bull is a representation of the Englishman that is known all over the world. While some of these cannot be called national emblems, they receive national and international recognition. So much injury has been done to Canada in the past by advertising her as the Lady-of-the-Snows, much good might result through the choice of national and provincial floral emblems, as these would go far to show that Canada has just reason to be noted for her gardens and her floral products as well as for her winter sports.

There seems little prospect of producers and consumers being able to stall off the increase in freight rates that conditions appear to make necessary. The unfortunate feature is that there is no guarantee that this increase will be sufficient for any reasonable length of time. The increasing frequency of strikes and the advancing cost of supplies are factors which tend to prevent any prospect of even the proposed new rates, once set, being long continued. This is one of the problems for which a solution is becoming increasingly necessary and difficult.

## National or State Flowers

In connection with the proposal to select a national flower for Canada, the following list of flowers, used as national or state flowers, may be of interest:

Rose.....	England.
Thistle.....	Scotland.
Shamrock.....	Ireland.
Blue Flag or Iris.....	France.
Saguaro or Giant Cactus.....	Arizona.
Apple Blossom.....	Arkansas.
Golden Poppy.....	California.
Blue Columbine.....	Colorado.
Mountain Laurel.....	Connecticut.
Peach Blossom.....	Delaware.
Orange Blossom.....	Florida.
Cherokee Rose.....	Georgia.
Syringa.....	Idaho.
Violet.....	Illinois.
Carnation.....	Indiana.
Wild Rose.....	Iowa.
Sunflower.....	Kansas.
Trumpet Vine.....	Kentucky.
Magnolia.....	Louisiana.
Pine Cone and Tassel.....	Maine.
Apple Blossom.....	Michigan.
Moccasin Flower.....	Minnesota.
Magnolia.....	Mississippi.
Bitter Root.....	Montana.
Goldenrod.....	Nebraska.
Sagebrush.....	Nevada.
Cactus.....	New Mexico.
Rose.....	New York.
Daisy.....	North Carolina.
Wild Prairie Rose.....	North Dakota.
Scarlet Carnation.....	Ohio.
Mistletoe.....	Oklahoma.
Oregon Grape.....	Oregon.
Violet.....	Rhode Island.
Pasque Flower.....	South Dakota.
Bluebonnet.....	Texas.
Sage.....	Utah.
Red Clover.....	Vermont.
Rhododendron.....	Washington.
Rhododendron.....	West Virginia.
Violet.....	Wisconsin.
Indian Paintbrush.....	Wyoming.

Twenty-five of these flowers were declared state flowers by legislative enactment, while ten were made so by common consent, and seven others by choice of the school children. —Manitoba Horticulturist.

## : SOCIETY NOTES :

### Hamilton

The Rose Show conducted this summer by The Hamilton Horticultural Society was a distinct success. In addition to an exquisite display of roses, there was a fine exhibit of peonies, sweet William, columbines, poppies, Canterbury bells and other flowers. The exhibits included a semi-professional exhibit, as well as numerous classes for amateurs. The latter included classes for wild flowers and ferns. As there are a considerable number of enthusiastic rose growers in Hamilton, the display was a most creditable one. The prizes for the best rose in the show and for a collection of roses were won by Mr. D. Johnston. Much of the success of the exhibition was due to the work of the secretary, Mrs. R. B. Potts, valuable assistance being given also by the treasurer, J. M. Robinson, Mrs. E. Schumacher and others. Red Cross girls received something over \$100 in their boxes at the entrance, and the St. Hilda Ladies over \$50 for patriotic work.

### St. Thomas

Advantage was taken by the officers of the St. Thomas Horticultural Society of the presence of the Governor-General and his party in St. Thomas to have the Governor-General plant a royal oak tree in one of the city parks. The function was well attended and attracted much interest. W. T. Black, Field Secretary of the Organization of Resources Committee, visited the community gardens conducted under the jurisdiction of the Horticultural Society in July. As a number of the gardens had been injured, and in some cases destroyed, by blight and insect pests, the Agricultural College at Guelph sent Prof. Miller to examine them. Prof. Miller will report his findings later and suggest remedies. This year the society incurred some unusually heavy expenses in connection with creating a park of the vacant land fronting the Michigan Central Station, with the result that the local papers, the board of trade, industrial committee and other bodies, co-operated and succeeded in raising \$1,000.00 to assist the society with its work. This action showed the popularity of the society with the citizens.

### Peterboro

The annual lawn and garden competition of the Peterborough Horticultural Society this year is open to every resident of Peterborough, no entry fee being required. The classes are as follows:

Class "A"—This class is open to all for the best kept grounds, etc. First prize, silver cup, to be retained by the person winning same three consecutive years. A second and third prize will also be given.

Class "B"—Open only to workingmen. Best kept lawn and surroundings. Three prizes.

Class "C"—Open only to workingmen. Best back garden and surroundings. Three prizes.

Class "D"—Best display of window boxes, hanging baskets or urns. Three prizes.

These competitions have been held for several years, with marked success.

### Guelph

Through the generosity of Mr. William McSkimming, 36,000 pansy plants were given to

the citizens of Guelph last spring. The work of getting the plants into the homes was accomplished by a committee of the Horticultural Society, composed of William Laidlaw, J. E. Carter, Major Merewether, G. M. Yates and E. Parkinson, who spent two days in digging the plants at Mr. McSkimming's place, and putting them up in packages. The plants were delivered to the schools in the city, and each pupil was given some to take home. Two wagon loads in all were distributed. The officers of the Horticultural Society announce that it was the largest donation of flower plants ever given in the city.

### Manitoba Selects Columbine

The committee of the Manitoba Horticultural and Forestry Association, appointed to propose a national flower for Canada, has suggested the native columbine (*Aquilegia Canadensis*), and this suggestion has been approved by the board of directors. The flower is a native of all parts of Canada. The following notes upon the columbine were prepared by an Ottawa committee:

Botanical name—*Aquilegia* (pronounced Ak-wil-ee-ji-a).

Crowfoot family—Near relatives, the buttercup, leopatica, larkspur, Canadian species, *Aquilegia Canadensis* and three varieties of the same.

Distribution—Native to rocky places and open woods throughout Canada; widely distributed.

Adaptability—Can be adapted with success to nearly all soils and localities. Does well under garden cultivation. Easily raised from seed and the young plants can be transplanted with success. Many hybrid varieties resulting from crossing native and European species are now in cultivation. Colors many and beautiful. Season of bloom, May to July.

Interesting Notes from its History—The name columbine is supposed to be derived from the Latin "columba," a dove, owing to the fact that a detached petal with the attached sepals resembles a dove with expanded wings. The name *aquilegia*, on the other hand, is traced by some to "aquila," the eagle, by others to "aquilegus," water holder.

The columbine was used in heraldic devices as far back as 1565. A beautiful yellow variety from California (*chrysantha*), and another blue and white variety from Sibirica (*glandulosa*), have been used to produce many beautiful hybrid varieties of modern introduction.

All typewriters now manufactured are visible writers. The Underwood is the pioneer. It has a lead on all others of ten years—ten years of constant striving for perfection. As J. George Frederick says, "The Underwood has had striking success in the typewriting field. Its factories, though they have been greatly enlarged, fail to keep up with orders. Success has come to this company on a silver platter. It put a fine typewriter on the market, and held patent rights which allowed it to sit on the one best way of making a visible writer."

Frederick was editor of *Printers Ink*, with something of a reputation for hitting the nail on the head. United Typewriter Co., Limited, 135 Victoria St., Toronto.

(Advertisement)



# Inspection and Sale Act Amendments Approved

J. R. Hastings, Winona, Ont.\*

THE recent changes in the Inspection and Sale Act will bring about a greatly improved situation and result in much good to the fruit growing industry. The new regulations affecting fruit packages do not become operative until June of next year, after which time manufacturers will be required to make, and fruit growers to use, only such packages as shall conform in size, quality, etc., to the standard fixed by the amended Act. This will insure the uniformity in our fruit packages which has been sought for so many years by the leading growers and dealers in the Dominion.

The regulations affecting the marking of packages, shipping immature fruit, proper filling of packages, etc., are now in force. That they are a vast improvement over past methods of packing our basket fruits will soon be in evidence. Under these regulations the name and address of the responsible packer must appear on each package—or where a grower's fruit is shipped in the name of a company, association or dealer, a number in lieu of such packer's or grower's name and address may be used. In any event, the name and address of the responsible packer, or a number to be furnished by the company, association or dealer handling his fruit, must plainly appear on each package. The sizes of the letters to be used are designated in the regulations, a copy of which every fruit handler should have and may have by writing to the Dominion Fruit Division, Ottawa.

## An Important Regulation.

The marking of fruit packages is, in my judgment, the most important regulation that has been enacted. The little extra trouble and expense it entails upon the grower is negligible as compared with the benefits which are sure to follow a strict observance of this regulation. In the past it has been possible for the unscrupulous packer to take unfair advantage and occasionally get away with it, but now it will be difficult for him to do so and dangerous to make the attempt. It will now be possible for the Dominion fruit inspectors to readily establish the identity of a packer, no matter at what point in the Dominion his fruit may be found, and the fact that a stiff fine and imprisonment may follow certain violations, will do much to protect the unscrupulous man against his own folly and at the same time remove a menace to the fruit growing industry. There is not the slightest doubt but the shipping of immature, wormy, diseased and dishonestly packed fruits has done much to curtail fruit consumption.

It should be noted by dealers and shippers that they are also liable to a penalty for handling fruit, no matter who packed it, that is in violation of the regulations. Cases of violation by a grower or packer coming directly under the notice of a fruit dealer or fruit organization should be promptly reported to a Dominion fruit inspector, in order that it may be dealt with as the circumstances warrant.

It is, I believe, the purpose of the Fruit Division to give instructional assistance to growers whenever this seems necessary, and to prosecute all cases of inexcusable violation of the Fruit Act regulations.

The regulation affecting the careless handling and pilfering of fruit was a much-needed

one and should be strictly enforced. No matter how excellent a shipment might be when it leaves the shipper's hands, the stormy voyage it has to take before reaching its destination may land it in the retailers' hands in a deplorable condition and subject the shipper to unfair criticism and sometimes a penalty.

## Nova Scotia Growers Approve

Manning Ells, Secretary Nova Fruit Growers' Association, Port Williams, N.S.

THE amendments to the Fruit Marks Act as made by the last session of Parliament should please the fruit growers in Nova Scotia, as every change that was made has had the approval of their Fruit Growers' Association for some time. Their delegates at the fruit conference in Ottawa last March were able to obtain every essential point in their program, and the law as passed follows closely all the resolutions passed by the fruit conference.

Perhaps for Nova Scotia the most important point of the amended act is that relating to the size of the barrel. New markets never would accept the old Nova Scotia barrel except under protest; some markets would not take it at all, and wherever it came into competition with the larger Ontario or United States barrel, the buyer cut the price much more than the actual difference in the fruit contained warranted. The advantages of one standard barrel for the continent are so many and so great that I need say nothing more on the subject. Nova Scotia decidedly has nothing to complain of here.

The new Act has been brought more up-to-date in the matter of grading. Here quite striking changes have been made. The No. 2 definition is quite different from the old No. 2, but fully in accord with the methods of all

This sort of thing discourages the small dealer at distant points from handling fruit and tends to curtail consumption. It should be pointed out, however, that pilfering and rough handling are not altogether responsible for the ragged condition in which fruit packages reach the retailer, and the shipper should insist that baskets shall be more securely fastened. One fastener in each end of an 11-quart basket of cherries, black currants, etc., is not enough. I notice that the baskets with four, six, and in the case of some black currants, with as many as eight hooks, arrive in much better shape and meet with a better sale than baskets insecurely fastened.

good packers in Nova Scotia. The old Fruit Marks No. 2 was supposed to be a second grade cooking apple (as the No. 1 was supposed to be a high grade dessert apple), and took in what is now divided into the "No. 2" and "Domestic" grade. In practice, this old method did not give satisfaction, for the packers found that the small apples, if of good quality, brought fine prices when exported, while the large defective or slightly spotted apples, being poor keepers, were better handled in the local markets.

The law now recognizes these two grades, and we have in the new "Domestic" grade a much better apple than the old No. 3. The consumer who wants a good merchantable apple at a moderate price can buy this brand now with the assurance that he is getting just what he is paying for.

The No. 3 grade was included in the amended Act at the special request of the Nova Scotia growers. Formerly the No. 3 mark was much abused, and covered all the sins in the apple packers' decalogue. Inspectors could do nothing, as they had no definition to back them up. Now with culls defined, and properly packed, the No. 3 can hold up its head in the market that calls for that grade, for we know that there is a place for the small, well packed apple.

## The 1918 Apple Crop

F. H. Grindley, Dominion Fruit Division, Ottawa

A summary of apple prospects in Canada, and a comparison with the crop of 1917, shows a close similarity between the two, as far as the total yield and its ultimate distribution are concerned. The total available supply of apples in Canada will probably be appreciably less than a year ago. Nova Scotia will produce approximately 400,000 barrels of apples, according to present estimates, which is only 60 per cent. of last year's crop of 700,000 barrels. Ontario expects a slight increase over last year's production and British Columbia a slight decrease. Quebec will have an exceptionally light crop, particularly of fall and winter apples.

The British embargo on Canadian apples is still in effect, and there is practically no likelihood of its removal or modification this year. It will, therefore, be necessary for the Nova Scotia crop to move westward. We may take it for granted, though, that the experience of 1917 will serve as a guide and be of the greatest possible benefit to individual shippers and to distributing agents this year. The efforts which are now being made to encourage the consumption of fresh fruits and vegetables will ensure a steady demand; in fact, the demand will very likely be greater than the supply. No marketing difficulties are, therefore, to be expected.

So far as prices are concerned, it would be unwise to make any definite statement at this

date. According to the law of supply and demand, prices should rule high. But we have learned, since the outbreak of the war, not to anticipate results with the same certainty as formerly. If past experience teaches anything, some effort should be made to prevent the unwarranted advance in prices which characterized the commercial apple market a year ago. If that is done, prices need not be any higher than the comparatively light crop would justify.

## Items of Interest

The well-known nursery firm, Stone & Wellington, kept track of the expense last spring at their nurseries of setting out a large cherry orchard. As the cherry trees were to be set out twenty feet apart each way, the field was marked out with the plough in furrows twenty feet apart each way. A tree was planted at each intersection. The whole orchard was planted by an old man over 70 years of age, with the assistance of a boy in short pants who held the tree in place, while the old man did the planting. These two, without any other assistance, planted 200 trees a day. Stone & Wellington state that it costs no more to plant apple trees than cherry trees, and they estimate that the old man and the little boy would be able to plant from four to five acres of apple trees a day.

\*Mr. Hastings was the chairman for several years of a joint committee of fruit growers in Ontario representing different districts and associations that was appointed to secure greater uniformity in fruit packages. It was due largely to his efforts that the amendments in the Act relating to the size and dimensions of packages were secured.



# Make Handling Fruit and Vegetables Pay

W. A. McCubbin, Canadian Commissioner of War Emergency Board,  
St. Catharines, Ont.

**T**HE War Emergency Board of American Plant Pathologists is issuing from time to time helpful hints and suggestions, which have a bearing on the present urgent necessity for greater production and conservation of food materials. The following is a copy of a recent short article sent out by them, that has a bearing on Canadian conditions.

## Handling Perishables Should Pay.

Fruits and vegetables should return a profit to the grocer. The increase in operating expenses, with its inroads into the traditional twenty per cent. profit, makes it poor policy to handle fruit at cost for the sake of creating good will. Nor is it possible to assure a profit on this class of goods merely by raising prices, for these valuable and necessary articles of food are so generally regarded as luxuries that an increase in price may mean such a falling off in demand as to cause a glut. The grocer can, however, improve his handling methods, reduce the loss from decay, and thus increase his profits and render patriotic service by saving food.

## When Everyone Loses.

Fruit which rots on the grocers' hands is a dead loss all round. The grower gets less than he should for his crop, the consumer pays for part of the fruit that rots as well as for what he eats, and the dealer loses the profit he should have made.

Some vegetables deteriorate greatly in quality and still remain saleable; for example, sweet corn, green peas and asparagus. Fresh asparagus contains from 1½% to 2% sugar, along with other food materials. If, however, asparagus is kept in a warm place, the sugar rapidly disappears and the amount of cellulose, that is, wood fibre, increases. In other words, the longer you keep asparagus in a warm place, the less sugar you have and the more wood.

## Keep Them Moving.

Practically all fruits and vegetables deteriorate rapidly when held for display on store counters or in the windows. Some, such as strawberries and raspberries, will rot in a few days. Apples from storage will often scald and thus become hard to sell. All such goods should be moved as rapidly as possible. This means well timed purchases, attractive prices, in particular an opening price which is low enough to create a buying habit, and the display of sound, clean goods.

The success of the fruit stand in handling perishables is largely due to the fact that many grocers are content to have boxes of half spoiled fruit in front of a counter, while on the fruit stand there is always clean, sound fruit on the top of the pile. This phase of the retail business has been repeatedly emphasized by Mr. A. U. Chaney of the American Cranberry Exchange, who says, "Time and again have I noticed that a retailer who has unsound and unattractive fruit in his store has blocked his sale of cranberries." The same is equally true of peaches affected with brown rot, or of apples which show scald. A first-class grocery is not the place to exhibit diseased fruits; leave that to the experiment stations.

## Well Grown Fruits Keep Best.

In many cases the fungi which cause a decay of fruits gain entrance in the field, and they can be controlled by well known methods. Probably in no fruit tree is the annual loss in the retail store greater than that in the case of peaches. A very large part of this loss is due to the brown rot fungus, the methods of controlling which are well understood by plant pathologists. While, in the case of fruit ship-

ped long distances, it is now impracticable for the grower to know from what type of orchard his peaches come, the dealer who handles locally grown fruit may well insist on buying only that which has been thoroughly sprayed and thus avoid trouble for himself and help educate the grower. The same is equally true of apples, cherries, plums and other fruits. The plant pathologist and the grocer should work together towards a time when sprayed fruit will bring a premium over fruit of equally fine appearance which may contain the germs of decay-producing organisms.

## Keep Cool.

Perishable fruits and vegetables must be kept cool if they are to be kept at all. Professor Morse, of Amherst, has shown that bunches of asparagus kept in a warm room deteriorated more in one day than similar bunches in a refrigerator did in four days. The same is true of many other vegetables.

Probably no common fruit shows a greater percentage of loss than the strawberry. The United States annually produces over eighteen million dollars worth of strawberries. This is an important food crop. In addition to furnishing the only cheap fruit which is abundant early in the season, good strawberries contain from four to five per cent. of sugar and other food material. Strawberries are, however, short-lived and are readily attacked by black mold, which rapidly causes them to collapse and to lose their juice. This disease is well known to the trade and is aptly named "leak." This fungus destroys over five per cent. of all the strawberries grown in the United States, an annual tax on the American public of at least a million dollars. Careful study has shown that black mold will grow more in 36 hours at 91°F. than in three weeks at 50°. It has also been shown that strawberries placed in the sun absorb the sun's heat so as to become markedly warmer than the air. It is no exaggeration to say that the average box of strawberries will spoil more in half a day in the sun in front of a grocery store than it would in three days in the refrigerator or even near the meat room.

## Hands Off!

Trade experience and scientific investigations alike show that most fruits and vegetables are injured by handling. Tomatoes, peaches, cranberries and strawberries, among other things, spoil rapidly after being handled, especially in a warm room. What, then, must be the effect of critical pinching and squeezing by every housewife who is trying to decide between tomatoes at twelve cents a pound and string beans at thirteen? If the purchaser must have a sample, take one out and make her a present; do not return it to the pile. Let the rule there be "Hands Off!" and let the rule be made known by a neat sign plainly displayed.

## Let's Get Together.

In these times of food shortage and high prices, public attention is being called sharply to waste of all kinds. One source of waste is the decay of fruits and vegetables in the grocery store. This can and will be largely reduced. To this end the plant pathologists of the country are ready to place their knowledge of the diseases of field crops at the disposal of the grocer, only asking that the grocer will in return point out where the pathologists can do the most good. Write the pathologists of your state or provincial experiment station, or the U.S. or Dominion Departments of Agriculture; ask questions and make suggestions.

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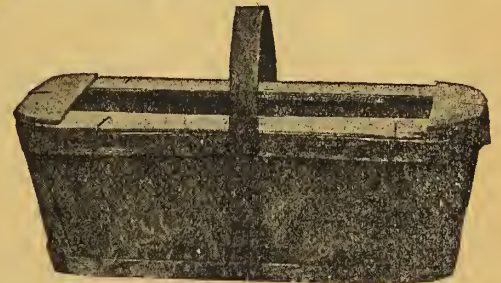
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## British Columbia

Chas. L. Shaw, Victoria, B.C.

**J. B. CASTNER**, for several years with the Okanagan United Growers, has been appointed fruit manager for the Penticton Fruitgrowers' Union. For several years Mr. Castner has been serving as fruit inspector, and his successor in that capacity is C. W. Little, of Enderby, at one time president of the Enderby Growers' Association, and also one of the provincial directors of the Okanagan United Growers. He has resigned both these positions to accept the salaried office in the central organization.

According to F. W. Peters, of the Canadian Pacific Railway, last year's Okanagan Valley fruit crop statistics showed that the output aggregated \$200 per capita of population. Unless weather conditions interfere, Mr. Peters looks for just as good a production this year.

Washington apples are expected to open in the prairie market with quotations from \$1 to \$1.25. It is being predicted that B.C. No. 1 Wagners, Romes and apples of that class will not open under \$1.80, and that McIntosh Reds will not be priced at less than \$2.25.

The recent embargo placed on American imports has added impetus to the market for British Columbia cucumbers, and the present hothouse supply is insufficient to supply the demand.

The general fruit situation in British Columbia is extremely promising and a crop equal or better than last year's is predicted. The May frosts did considerable damage in the interior, but not so much as was first believed. Some orchards suffered a 50 per cent. loss, but the new land coming into bearing will probably more than compensate for that.

The strawberry crop of the Gordon Head and Saanich districts this season was light, the harvest being less than two-thirds of the 1917 production, both in volume and value, and last year's showing was not any too satisfactory.

Seventy tons of jam berries were shipped, and 11,000 crates went out to the prairies. Three hundred and sixty-six crates were consumed in Vancouver and the remainder stayed on the island. The total value of the crop is estimated at \$13,000.

The Gordon Head Fruitgrowers' Association tried out the new type of brine tank car this year and found it wanting. The crop was shipped to the prairies in fifteen cars. One was a brine tank car, and the contents of that one car deteriorated to the extent of 65 cents per crate. The berries packed in the cars equipped with the Bohn refrigeration system were in excellent condition when they reached their destination, and R. R. Scott, president of the Scott Fruit Company, Calgary, wrote Secretary McNaughton, of the Gordon Head Fruitgrowers' Association, that he never saw shipments in better shape than those received from the two Vancouver Island districts this year.

Speaking of cars, there is a controversy

going on in the West as to the relative merits and demerits of the ventilated cars and the line cars. The ventilated cars are closed after loading and remain closed until reaching the prairie markets. A cool air draft is circulated through the car with intake at the top. It is claimed that small fruit shipments are often seriously damaged through this arrangement by the smoke, soot, cinders and dust that enter the intake. The line cars are used for north and south shipments. They are provided with ventilation vents at the ends, with outlets at the top, and they are said to be not subject to the smoke nuisance. If express messengers exercised more care in opening and closing the intakes and vents, it is believed that both types of cars would be more satisfactory. The Dominion Express Company will probably give both cars a thorough test this season to determine definitely which of the two is better suited for the trade.

### Annapolis Valley Notes

Eunice Buchanan.

**F**EW people believe that there will be more than 400,000 barrels in the valley this season. Others do not think that there will be 300,000. At present there is a

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heavy drop of young apples. In the best cared for orchards the crop is light, with the exception of some varieties, while in uncared for orchards there is practically nothing. The markets will be relieved by the elimination of the competition of small growers. The crop

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will be owned by men who are financially better able to handle it. Judging by the prices and demand for everything else, apple prices ought to be equal or superior to any of late years, and growers are more optimistic.

The strawberry season was prolonged with showers. Prices received ranged between 45c to 14c per basket. Imported fruits, bananas, for instance, are double the price and scarce; 60c a dozen, where they used to be 30c. Oranges, 6c to 10c each. Grape-fruit, 12c to 18c each.

Many people lost bees during the winter. One prominent bee-keeper estimated the loss at 90%. The bees have not been inclined much to swarm so far. Zebra caterpillars have again appeared on the turnips.

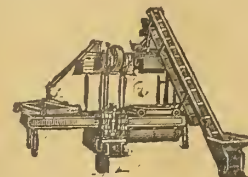
The deer are becoming numerous and destructive, and apparently know that they are protected. They come to eat the clover near where the men are working, and besides destroying crops, are summer pruning apple trees to a disastrous extent.

Our duty is plainly a matter of production to the limit with the means at hand because more and more of our able bodied men will be required of us to fill the gaps at the front. Medical science tells us that good bodily vigor is not possible without a fruit ration, and the apple is the king of all fruits. Are we doing our duty to the cause when we allow our orchards to get into such a condition that a decent crop of apples is well nigh impossible? This is not far fetched argument; it is based upon common evidence to be had in any section of Ontario. The spectacle of a good crop of clean apples on a few orchards, while the general average have practically nothing at all, has been only too common of late. In almost every case it is due to lack of care on the part of the grower.—Dr. J. A. Grant, Thedford, Ont.

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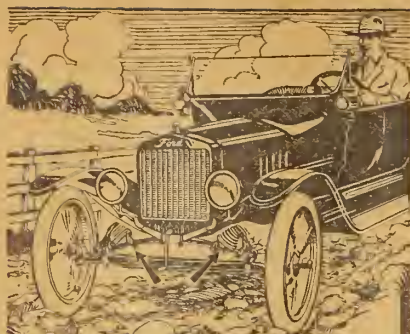
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# POULTRY YARD

## August in the Poultry Yard

March-hatched pullets should be laying eggs now.

Caponizing can be performed in August. Hens set this month should produce chicks that will make fine table poultry in February.

This is the scheduled molting month for young stock. Fowls that begin molting in August are pretty sure to be profitable winter birds.

August is one of the most trying months of the year for hens. They are often molting, and that of itself is a tough job for hot weather. It is a critical time with them, and they need a bit of help and sympathy. A good substantial ration will help them to get along with this sick spell more quickly and to feel better after it is over.

Get rid of all the surplus fowls. It is more profitable to dispose of them now at a good figure than to carry them through the molting season at a possible loss.

A good iron tonic in the drinking water is a good brazer at this time. Some rusty iron in the drinking water is an excellent substitute.

When broody hens occupy the nests for days at a time, lice increase rapidly, and the combined weight of other hens laying in the same nest is likely to break an egg, and the habit of egg eating is formed. Besides, eggs laid with the sitting hens are often not gathered until evening or perhaps the next day. This is one of the things that cause a poor quality of summer eggs.

It is cruel to punish the broody hen; she can not help her desire to sit. It is brought on through a long period of egg laying. Throwing her off the nest and other rough methods create apprehension among the rest of the hens, which hurts the egg yield. A roomy, airy coop is the surest and speediest cure for broodiness. A slatted coop permits a free circulation of air, helpful in the hen's fevered condition. Three days of confinement is sufficient in most cases.

## Breaking Up Broody Hens

Three things I wanted when I built my broody hen coop. I did not want to carry the hens any distance or have difficulty in getting them into the coop. I wanted them to be where other hens were busy eating and scratching around them to make them anxious to be doing the same, and I knew they would break up much easier if the bottom of the coop was open enough so the air could circulate up around them.

To get the nests and the coop handy to each other I set the coop up four feet from the ground, and built two tiers of nests underneath, which, with the one on the ground, made three tiers. Six inches below the lath bottom to the coop I placed a dropping board to keep the nests clean. To make it convenient to put the hens into the coop I had the door in the front opening in and hinged at the top. I simply pushed the hen through and the door dropped back shut and could not be pushed out from the inside. A simple wire hook held it open when I wanted to let the hens out.

As the coop was in the scratching shed, and the other hens were kept busy scratching there, the broody hens had plenty of company, doing away with the seclusion the setting hen likes. With bottom, sides,

and top all made of lath an inch apart there was no lack of fresh air, and no chance for making a warm nest, and no hen will set long unless she can have a warm nest under her.

Three days was the usual time it took my hens to get over their broodiness. Food and water were provided in vessels attached to the outside and reached through larger cracks, so it was never fouled. With nothing to do but eat, the hens forced themselves to get ready to lay again.—L. H. C.

## Poultry Diseases

At least fifty per cent. of the chickens, young ducks and turkeys, and ten per cent. of the adult birds, die each year from diseases, many of which are preventable. To stop this leak, every breeder should pay strict attention to the general conditions of his flock. When anything unusual is noted in a fowl, it is advisable to place the affected individual in separate quarters. If within a short time recovery does not take place, it is unwise to destroy the fowl without first ascertaining the cause of the disorder. The extreme importance of keeping the quarters clean, isolation of all ailing fowls and immediate action in regard to finding out the cause cannot be too strongly impressed upon the poultryman.

When trouble occurs, forward to the Biological Laboratory, Central Experimental Farm, Ottawa, Ont., a live but sick fowl, or, in the absence of such, a dead bird. In the interval disinfect the quarters, runs, drinking fountains and feed dishes to check the spread of any infectious disease. Disinfect the poultry houses by spraying the interior with a lime-wash solution (50 lbs. stone lime slaked in a barrel of water plus one gallon of a good commercial disinfectant). Fill cracks and crevices to destroy mites, lice, etc. If a smaller amount is required, it may be prepared by adding two and a half pounds of lime to a pail of water plus half a teacupful of disinfectant.

Keep a crop growing in some part of the yards and alternate poultry and crops. If the runs are small, cover with a coating of air-slaked lime and dig up. If the runs are too large to dig, plough and cultivate before sowing. Rape is a good crop for this purpose. Rear all chicks on fresh soil. Although these precautions may appear unnecessary, it is the only way of combatting many disease conditions affecting poultry, which if left to themselves, may prove decidedly costly in the long run.

## Market the Cockerels

Poultry keepers will find it more profitable to market young cockerels when they reach a weight of 2 lbs. rather than to feed the birds until late fall or early winter. Experiments show that at least 10 pounds of grain must be fed to produce a pound of gain and it is doubtful whether grain should be utilized for meat production through poultry.

On the average the feed necessary to grow birds to maturity will cost four cents a pound; thus unless the poultry producer has a special market for the heavier birds the price secured next fall may not pay for the feed given the fowls. Young cockerels marketed now as broilers generally bring an attractive price; then the flock may at once be fed with a view of developing winter-egg producers.



## Inspection of Rejected Cars

In the past, losses and waste of fruit and vegetables have occurred by consignees refusing to accept cars, necessitating reconsignment and probably a second rejection or a forced acceptance at a greatly reduced price. Some cars have been refused because of careless grading and loading; with others there was no reasonable excuse. The consignee reported to the shipper that the goods were unsound; the shipper either had to accept the advice and make allowance on the price, or hurry to

the scene for confirmation. Usually the markets are so far from the producing districts that the latter course is impracticable, and the marketing of these commodities, the very nature of which invites disputes, goes along with the shipper dependent almost entirely upon the honor of the consignee. Declining markets have sometimes been responsible for car refusal or invoice deductions, during the adjustment of which, deterioration of the shipment has been considerable.

To facilitate a prompt delivery, ensure fairness to both consignee and shipper, and to avoid unnecessary waste, the Fruit Commis-

sioner, Ottawa, upon request from either shipper or consignee, will have inspection of such cars made by a Dominion Government Inspector, and a copy of his report stating the exact condition of the goods, their containers, and the car, will be forwarded to the applicant.

The inspection service herein referred to is free, but at the present time can only be supplied at the larger marketing centres such as London, Toronto, Hamilton, Ottawa, Montreal, Quebec, St. John, N.B., Halifax, Winnipeg, Calgary and Vancouver. Application for inspection should be made direct to the Fruit Commissioner, Ottawa.



## IMPERIAL SERVICE

If you are in doubt about the proper lubricant, *ask the Imperial Oil man*. He will give you courteous attention and sound advice on your lubrication problems. That is part of Imperial Service.

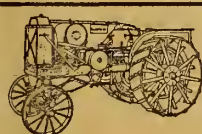
## FARM MACHINERY AN ASSET ONLY WHEN IN USE

**Y**OU get no return from your investment when your farm machinery stands idle. Delays caused by broken parts or worn out bearings are costly. Many times these delays can be traced to improper lubrication. *Correct* lubrication is an important factor in keeping your machines in shape for full service.

You take no chances when depending on us for lubrication advice. We know and will recommend to you the correct Imperial Oil for every lubrication requirement. We can advise you and can supply the correct lubricant at our many stations all over Canada. There is one near you.

Every Imperial lubricating oil is sold in steel barrels and half-barrels—convenient and economical. There's no waste. You use every drop you pay for. You are sure it is uniform and clean.

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For Gasoline Engines,  
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**POLARINE OIL**  
**STANDARD GAS**  
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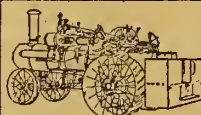
For Open Bearings of  
Farm Machinery

**PRAIRIE**  
**HARVESTER OIL**

—very heavy body,  
resists cold, won't  
thin out with  
moisture

**ELDORADO**  
**CASTOR OIL**

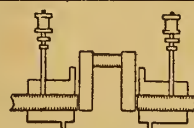
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**LIMITED**  
**BRANCHES THROUGHOUT CANADA**



## The Fruit & Produce Market

The Commission firms undernoted wish consignments of fruit and general produce. They will be pleased to have you write them for information, shipping stamps, etc., if you have fruit or vegetables for sale.

## STRONACH & SONS

33 Church St., Toronto, Ont.

Wholesale Fruit, Produce and Commission Merchants.

Canada Food Board License Nos. 3-018, 3-019 and 7-005.

## H. J. ASH

44-46 Church St. - Toronto, Ont.

CONSIGNMENTS OF FRUIT & VEGETABLES SOLICITED

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Canada Food Board License Nos. 3-043, 3-044 and 3-517.

## DAWSON - ELLIOTT CO.

32 West Market St., Toronto, Ont.  
Wholesale Fruit and Produce. Consignments Solicited.

Canada Food Board License No. 3-045, Class II., Div. B., and 3-046, Class II., Div. C.

## HERBERT PETERS

88 Front St. E., Toronto, Ont.

See advertisement on page v.

Canada Food Board License Nos. 3-007, 3-008 and 3-009.

# Niagara District Notes

F. G. H. Pattison, Winona, Ont.

THE weather during the past month has been favorable. The latter part of June was colder than usual and caused the strawberry crop to ripen slowly, but this was an advantage to both growers and shippers, as it gave more time for picking and handling the crop, and rendered the fruit firm, so that there was but little waste. The same is true of the cherry crop. Although both strawberries and sweet cherries were a light crop, never has the fruit been finer nor more satisfactory to handle. The dry, cool weather prevented any rot and the fruit was in consequence of very high quality.

Prices for all small fruits have constituted a record. Strawberries ranged from 17 to 35 cents a box, and by the crate 18 to 22 cents were the ruling prices. Canners were buying freely in the open market, and paid as high as 25 cents per box.

Raspberries are on the market now. Early berries sold for 28 to 32 cents per box. A number of growers have contracted their raspberries for \$4.80 per crate, or 20c per box, so that the general public is not likely to get their supply much below \$6 per crate.

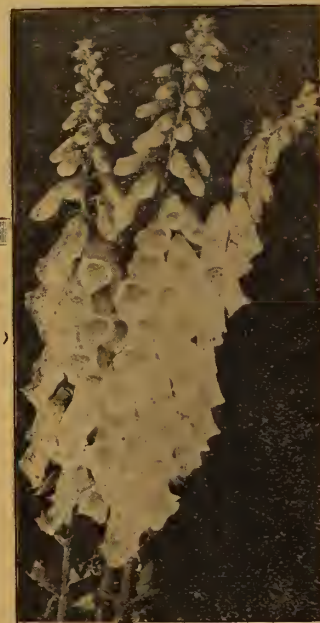
In the Winona district currants have been contracted at 14 cents a lb., and have been selling in the Toronto, Hamilton and St. Catharines markets at about \$1.25 per 6-quart basket, and \$2.50 to \$2.65 per 11-quart. Sweet cherries, both red and black, have been sold mostly in small baskets, and the price has varied from \$1.50 to over \$2.00, the latter price for blacks chiefly. In sour cherries, Early Richmonds were only a moderate crop. Montmorencies yielded better, however, and are a pretty good crop. Prices have run at 75c

to 90c for 6 quarts, and \$1.50 to \$1.60 for 11 quarts. Gooseberries are in excellent demand at from 65c to 90c per 6 quarts, and \$1.50 to \$2 for 11 quarts. Red currants have been in good demand at from \$1.25 to \$1.50 per 11-quart.

The plum crop is going to be a fairly good one, but outside of the Niagara District it is very light, so that prices are likely to rule high. Lombard, Gneii, Reine Claude, and Damsen are the best, but European plums are generally pretty good; Japanese are light, except Burbank. Contracts have been made at from 50c to 60c per basket all round, but I am of opinion that the general market will run above those prices.

Pears are light, except Bartletts and Keifers. Peaches are not more than 30 per cent. of an average crop. Early peaches are the best, although there is a fair crop of later varieties on some orchards. A number of trees have been killed outright by the winter, and many others seriously damaged.

Grape vines were rather late coming into blossom, the cool weather having kept them back. Now, however, they are looking well, although some winter-killing has taken place. They do not appear, however, to be setting a heavy crop, and 75 per cent. of an average crop is considered to be about right.



## SOW PERENNIALS NOW FOR NEXT YEAR'S BLOOM

Perennials are now among our most popular flowers. They save labor and yearly planting, give better and earlier bloom and in greater variety than annuals. Perennial flowers are best for table decoration, as they keep fresh longer. In order to secure bloom next year it is necessary to sow them now. The following is a list of the most popular perennials we can recommend, together with prices:

**VARIETIES**  
Aquilegia Delphinium Canterbury Bells  
Forget-Me-Not Coreopsis Gaillardia Digitalis  
Hollyhocks Pansy Sweet William

Send your order now enclosing remittance by Postal or Money Order and we will promptly ship the seeds.

**GEO. KEITH & SONS**  
124 King St. E., Toronto, Ont.

## Prize List

Now \$30,000.00

\$1,500 added this year, and the FRUIT and FLOWERS received their share.

A wonderful programme of star attractions given daily. Bands, pipers and a big Midway. Fireworks each night. Pure Food Show

# WESTERN FAIR

LONDON CANADA

Sept. 6<sup>th</sup> to 14<sup>th</sup> 1918

N. B.—New automobile entrance cor. Dundas and Egerton Sts. Admission \$1, covers auto and driver, including parking of car.

Prize List, Entry Forms, Application for Space, and all information from the Secretary

Lt.-Col. W. M. Gartshore, President

A. M. Hunt, Secretary

Over Half a Century of Success



City and townspeople are grumbling a good deal at the high prices of fruit, but considering the high prices the fruit growers have to pay for their labor and supplies of all kinds, if fruit prices were not high, they would simply have to go out of business. The light crop is also a strong factor, as well as the fact that the canning factories are absolutely bare of supplies, and therefore are out for all they can get.

There are not many National Service girls employed in this neighborhood by fruit growers, although E. D. Smith & Son employed about 90 of them in the factory for handling the strawberry crop. In the neighboring county of Lincoln, however, a number of National Service girls have been employed and have given good satisfaction.

Several tractors are being used by fruit-growers and they have been a great assistance, doing good work in the way of cultivation and saving a lot of men. Without their help, some of the large growers here would have been hard put to it to keep their orchards well tilled. As it is, they look better than ever before. The makes used have been Ford and Cleveland. The latter has a more powerful engine and seems to do the best work, but it is more expensive than the Ford.

A report from Grimsby says that the Early Richmond crop there is excellent and the quality unexcelled. The outlook for the Montmorency crop is also very good. Some fine samples of gooseberries are now being marketed, and growers are getting big prices for this fruit.

## Cause of Winter Killing

An unusual feature of the winter killing of so many trees last winter is the fact that many of them were frozen above the collar of the root, just out of the ground, in a belt two to four inches wide. Many trees were injured to such an extent that they were lost, while others are about half gone. Mr. A. W. Peart, of Burlington, while speaking to an editor of The Canadian Horticulturist about conditions in that district, stated that this form of injury was very prevalent.

Mr. Peart, during his long experience, had never heard of trees being injured in this manner before. He advanced the suggestion that the reason the trees were injured in this spot might have been due to the fact that the grass protecting the trees in this place had made them more tender, with the result that with such severe weather as was experienced last winter, the trees were injured at this point.

We have no such valuable paper in England as the fruit edition of The Canadian Horticulturist. I always look forward to receiving it, and as an old subscriber, learn much from its columns.—E. F. Newling, Beckenham, Kent, England.

I always find The Canadian Horticulturist a help to me and look forward to receiving it each month, as I have quite a large orchard and keep a few chickens.—Jas. A. Meeks, Stratford, Ont.

## Grow Your Own Seed

While rigid selection from year to year is necessary for most kinds of vegetables when grown for seed; and while to keep them pure the different varieties have to be grown some distance apart, yet most of the seed grown in the home garden is likely to give almost or quite as satisfactory results, or even better, than that which is bought, and, as some seed may be difficult to obtain next year, it is recommended for each person who has a garden to let a few plants or specimens ripen, from which seed can be saved.

It is better to mark the best plants and save the seed from them, rather than to save



## "Daisy" Apple Sorting Table

The "Daisy" Apple Sorting Table is one of the most useful articles in our outfits for fruit growers. It folds into small compass and can be placed anywhere in the orchard. It is light, but is strongly built to withstand rough usage. The table frame is of oak and all metal parts are of first class malleable. The cover is of No. 10 canvas.



## "Daisy" Apple Press

The "Daisy" Apple Press is one of the best-known articles of this line, and is indispensable to every packer. In fact, it is used by the leading apple packers in Canada, United States and England.

Fruit growers' supplies carried—Ladders, Baskets, Felt Pads, Racks, etc.

Write for Prices. Special Quotations to Associations

**J. J. ROBLIN & SON**  
BRIGHTON ONTARIO

## DOUGLAS GARDENS

### Catalogue for 1918

Contains a complete list of a number of new plants that will interest customers this season.

A fine assortment of Paeonies. Perennial plants of all kinds. Shrubs and roses.

### BEDDING PLANTS

Standard Fuchsias from 2 to 3 feet. Carnations of the finest varieties. Heliotrope, Cowslips, Salvia, Salpiglossis, Snapdragons, Pentstemon, Lobelias, Pansies, Ageratum, Verbenas, Asters and Stocks.

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## Northern Ontario.

A vast new land of promise and freedom now open for settlement at 50c an acre in some districts—in others, Free.

Thousands of farmers are responding to the call. Here, right at the door of Southern Ontario, a home awaits you.

For information as to terms, regulations and railway rates to settlers, write to

**H. A. MACDONELL,**  
Director of Colonization,  
Parliament Bldgs., TORONTO, CAN.

**G. H. FERGUSON,**  
Minister of Lands, Forests and Mines.

## CANADIAN NATIONAL

# EXHIBITION

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New and Better Classifications in All Departments. A win at Toronto places you in the front rank and brings many buyers.

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**GREENHOUSES**  
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Limited, of Canada

TORONTO MONTREAL  
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## SEEDS

Wholesale

IMPROVED FARM ROOT SEEDS  
IMPROVED VEGETABLE SEEDS  
IMPROVED FLOWER SEEDS

Seedsmen please enquire for our SPECIAL PRICES

**KELWAY & SON,** Wholesale Seed Growers  
LANGPORT, England

Cable Address: KELWAY, LANGPORT

## SKINNER SYSTEM OF IRRIGATION

Control complete. Prevents drought losses. Reduces labor bills. Increases profit. Special Portable Line for \$15.75. Send for new Bulletin.

The Skinner Irrigation Co.  
217 Water Street Troy, Ohio.

the seed which remain after the plants have been cropped.

The following minimum number of feet, plants or specimens to be saved is suggested as being sufficient to supply enough seed for the home garden in 1919: beans, 5 ft.; corn, 1 ear; cucumbers, 1; lettuce, 3 plants; melons, 1; peas, 5 ft.; radishes, 3 plants; spinach, 3 plants; squash, 1; tomatoes, 3.

Either reserve a few feet of the row of beans, or, better still, mark a few productive plants free from disease.

The seed stalks of lettuce are thrown up after the heads are full grown. The seed ripens rather unevenly, and, in order not to lose any of it, each head should be picked over as it shows white, it being necessary to go over the plants every few days. The plants can, however, be pulled and hung up to dry.

If some radishes are left unpulled, after being ready for use, they will soon throw up stalks, and good seed will develop. For best results the plants should be at least six inches apart.

Spinach, if thinned to six inches, will produce an abundance of seed.

In saving home-grown seeds, it is important to dry them as soon as possible after they are ripe, then clean them, and keep them dry until needed the following spring.

Peas and beans will soon be spoiled for seed if they do not dry rapidly in the pod after being harvested.

As corn sometimes has to be pulled before it is quite hard, it is desirable to see that there is a good circulation of air around each ear. A good plan is to husk the ears and then stick each one separately on nails driven into a board and far enough apart so that the ears will not touch.

The seed of tomatoes for home use should be saved from the plant bearing the largest crop of early and best fruit. Where a quantity of seed is saved, the tomatoes may be cut in half and the pulp pressed out into some vessel, adding about one-third its volume of water. Put in a dark room until fermentation sets in, which will be in about two days, when the seed will separate readily from the pulp. Wash out and dry where the sun does not shine on it.

Following are the quantities of seed which one might expect: beans, 1 or more oz. per plant; corn, 300 to 600 kernels per ear; cucumbers,  $\frac{1}{8}$  to  $\frac{1}{4}$  oz. per specimen; lettuce,  $\frac{1}{4}$  oz. per plant; muskmelon, 1 to  $1\frac{1}{2}$  oz. per specimen; onion,  $\frac{1}{8}$  oz. per plant; pea, 4 oz. per 3 ft. or row; pepper,  $\frac{1}{16}$  to  $\frac{1}{8}$  oz. per specimen; radish, 1 oz. per plant; spinach,  $1\frac{3}{4}$  oz. per plant; squash, small seeded,  $2\frac{1}{2}$  oz. each; squash, large seeded, 3 oz. each; tomato, 50 to 300 each; watermelon, 2 to 3 oz. each.

## Books and Bulletins

During the past few weeks a number of interesting books and bulletins dealing with horticultural subjects have reached The Canadian Horticulturist. One of the most interesting and useful of these is a book entitled, *Injurious Insects and Useful Birds*, by F. L. Washburn, M.A., formerly Minnesota State Entomologist. It is one of the well-known series of books entitled Lippincott's Farm Manuals. The book is the result of twenty-one years of experience in economic entomology, and is intended for the gardener, the orchardist and the nurseryman, as well as for



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UNION MADE  
**OVERALLS**  
SHIRTS & GLOVES  
*Known from Coast to Coast*  
**R. G. LONG & CO. LIMITED**  
TORONTO CANADA

## PEONIES

A limited number of roots of such choice varieties as Soulangue, Mignon, Primevere, La Lorraine, Sarah Bernhardt, Lamartine, Therese and Le Cygne will be supplied while they last. Send for price list if interested.

**J. H. BENNETT**

BARRIE : : ONT.

# Fruit and Vegetables Solicited

**We Get Best Prices**

OUR facilities enable us to realize top prices at all times for your fruit, vegetables or general produce. Aside from our large connection on the Toronto Market, we have established branch warehouses with competent men in charge at Sudbury, North Bay, Cobalt, Cochrane and Porcupine. In time of congestion on the Toronto market we have a ready outlet through these branches. We never have to sacrifice your interests.

Canada Food Board License Nos. 3-007, 3-008 and 3-009.

Branch Warehouses:  
Sudbury, North Bay,  
Cobalt, Cochrane and  
Porcupine.

**H. PETERS**  
88 Front St. East, Toronto

References: The Canadian Bank of Commerce (Market Branch) and Commercial Agencies.



**We Solicit Your  
Consignment**

**Send for  
Shipping Stamp**





the farmer. It deals with insect pests affecting the apple, pear, plum, peach, cherry, grapes, berries and other fruits. The insects are fully described, their habits given and methods of control applicable to each advised. The book contains almost 450 pages, is well printed and contains over 400 illustrations. It may be purchased through The Canadian Horticulturist for \$2.00 a copy.

## Death of "Dan" Johnston

Just as The Canadian Horticulturist was going to press, word was received of the death of Dominion Fruit Commissioner, D. Johnston. His sickness is announced elsewhere in this issue.

Mr. Johnston left his office in Ottawa in May last to seek rest and improve his health on his farm. He was suffering at that time from stomach trouble and rheumatism. Reports indicated a slow improvement, but apparently his heart could not stand the strain and he died very suddenly and quite unexpectedly on August 4th at Forest. His age was forty-two.

Following the death of the late Alex.



The Late "Dan" Johnston.

McNeil, who was Chief of the Fruit Division under Dairy Commissioner Ruddick, the Fruit and Dairy Divisions were divided and Mr. Johnston was appointed first Dominion Fruit Commissioner. He was a practical fruit grower and an enthusiast in the co-operative movement. He was past-president of The Ontario Co-operative Apple Growers' Association, and has made a great success as Dominion Fruit Commissioner, holding the confidence of the fruit growers from the Atlantic to the Pacific. The recent amendment to the Inspection and Sales Act at the recent Session of Parliament were the result of several years work on Mr. Johnston's part. In the death of Mr. Johnston the Canadian Fruit Industry has lost one of its best friends and strongest supporters. He leaves to mourn his loss a host of friends throughout the country.

The Proceedings of The Entomological Society of Nova Scotia is a comprehensive report. It is somewhat technical, but well illustrated and valuable. Copies may be had from the Nova Scotia Department of Agriculture, as well as of a pamphlet entitled, Two

Important Vegetable Pests. This is circular No. 26, by W. H. Britton. The two pests dealt with are the Potato Stem Borer and the Zebra Caterpillar. This latter insect has been attacking fields of turnips, potatoes, beets, beans, and even apple and other plants. Remedies for both are given.

## FARMERS' BUSINESS

For the past 54 years, this Bank has given particular attention to the business of Farmers.

We have helped many over the rough places, and have aided many more to the highest plane of success.

We are prepared to extend you every aid within legitimate banking practice.

Come in at any time and talk over your affairs with us. You are always welcome.



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Visitor: The Lord Bishop of Toronto.

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Young Children also received.

Preparation for the University. Art Department, including drawing, painting, wood carving and art needlework. Toronto Conservatory Degree of A.T.C.M. may be taken at the School. Fine, healthful situation. Tennis, basketball, skating, snowshoeing, and other outdoor games.

For terms and particulars apply to the Sister-in-Charge, or to the Sisters, of St. John the Divine, Major Street, Toronto. College reopens September 12.

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ORCHID GROWERS

The Finest Stock in the World

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ST. ALBANS

ENGLAND

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### Your Country Needs Your Help

If the essential work of the country is to be carried on—if our national interests are to be protected and advanced, trained women must fill the positions vacated by the men called to fight.

### Here Is YOUR GOLDEN OPPORTUNITY

Educate and prepare yourself to assist by learning modern practical business methods at

### ALBERT BUSINESS COLLEGE

Belleville, Ont.

School re-opens September 9th, 1918.

Write for calendar and special information on our business courses to

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**CLASSIFIED ADVERTISEMENTS**

Advertisements in this department inserted at the rate of 15 cents a line, each line averaging seven words. Part lines count as whole lines, minimum of two lines accepted. Strictly cash in advance.

**BEES**

**SWARTS' GOLDEN QUEENS** produce golden bees of the highest qualities. Satisfaction guaranteed. Mated, \$1.00; 6 for \$5.00; Tested, \$2.00. D. L. Swarts, Rte. 2, Lancaster, Ohio.

**FOR SALE**—3,500 3-Banded Queens, none better. Write for price list. J. F. Diemer, Liberty, Mo.

**GET JUNE, JULY and AUGUST** prices on 3-banded Queens. J. F. Diemer, Liberty, Mo.

**ITALIAN QUEENS**—Northern-bred, three-banded, highest grade, select untested, guaranteed. Queen and drone mothers are chosen from colonies noted for honey production, hardiness, prolificness, gentleness and perfect markings. Price, one, \$1; twelve, \$10; fifty, \$35. Send for circular. J. H. Haughey, Berrien Springs, Mich.

**FOR SALE**—Three-band Italian queens from best honey-gathering strain obtainable. Untested queens, 75c each; 6, \$4.50; 12, \$8.00. Safe arrival and satisfaction guaranteed. W. T. Perdue, Ft. Deposit, Ala.

**FOR SALE**—Italian Queens and Bees. Queens, \$1.00 and \$1.50 each. Pound packages, Nuclei and colonies. H. A. McCarley, Mathis, Texas, U.S.A.

**HONEY**

**WANTED**—First-class white honey, the coming season's production. Will pay ruling prices and supply tins. Foster & Holtermann, Limited, Brantford, Ontario.

**WANTED TO BUY**, your honey or sell you new 60-lb. tins. G. A. Deadman, Merlin P.O., Ontario.

**WANTED**—Choice white extracted honey. State quality, quantity, size package. Spot cash price F.O.B. your R.R. Station. E. J. Berry, Calgary, Alta.

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**NEW CAPPING MELTER FOR SALE**—Exchange for wax press or bees. Henry Twigg, Campbellford, Ontario.

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**ALL KINDS OF FARMS**—Fruit farms a specialty. Write, stating requirements. W. B. Calder, Grimsby.

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We have a large stock of all sizes  
**FLOWER POTS**  
**FERN OR BULB PANS**  
1/2 **AZALEA POTS**  
and Rimless Pans

Orders Filled Promptly.

Send for Prices

**THE FOSTER POTTERY CO., Ltd.**  
HAMILTON, ONT.

**PERRY'S SEEDS**

Alpine and perennials, unique collection; many new varieties unobtainable from any other source.

Hardy and adapted for Canadian climate.

**HARDY PLANT FARM, ENFIELD, ENGLAND**

**Fruit Grading and Sizing**

Mr. P. J. Carey, Chief Dominion Fruit Inspector, Toronto, in his address before the Niagara Peninsula Fruit Growers, stated: "Too much emphasis cannot be placed on the need for grading peaches. The placing of fruit of different qualities and sizes in the same basket is now out of date as a practice by the best growers in every peach growing country. Such a pack does not please any trade. The high-class trade is ready to pay a high-class price. It has no place for the lower grades, and often will go without rather than take mixed packs. The packing, too, can be done with much more ease when fruit is sized. It is impossible to make a good smooth job of packing fruits of different sizes in the same basket. There is a danger, too, when all sizes are present, of the packer putting the larger fruit on the top of the basket, and then, of course, getting into trouble with the inspectors. I look upon the grading of basket fruits as one of, if not the most, advanced steps in fruit culture."

The best means of getting an even size of fruit is with a mechanical grader, and the simplest and most efficient one, and the only machine that is suitable for apples and peaches, and the only one that will handle tender fruit without bruising, is the Gifford Fruit Sizing Machine, manufactured by The Gifford Manfg. Co., of Parker, N. Y., and distributed in Canada by a prominent fruit grower, Mr. R. J. Lowrey, of St. Davids, Ont.

Letters from three prominent growers give their opinion of this machine in use on peaches and pears last season. One grower paid for

his machine in two weeks in labor alone saved. To another it meant whether he got his crop off or not. The Gifford Machine enabled him to double his capacity, and thereby saved him the crop of peaches.

Mr. Lowrey last fall met with splendid success among the apple men in the Anna Valley, N. S. This machine filled a long-wanted, and very many of the fruit warehouses there are now equipped with a Gifford Fruit Sizing Machine.

I purchased a Gifford Fruit Grader last season and used it on peaches and pears. I found it entirely satisfactory and a means of obtaining increased prices and securing an even grade of fruit.—A. Onslow, Addison Fruit Farm, Niagara-on-the-Lake, Ont.

The Gifford Fruit Grader I purchased last year for sizing peaches not only did the work perfectly, but saved the labor of at least six women.—C. Howard Fisher, Dulverton Fruit Farm, Queenston, Ont.

The Gifford Fruit Sizing Machine which I purchased last season did the work expected without bruising the fruit in the least. It runs very smoothly and is a great labor saver. I would not attempt to handle any quantity of fruit without one.—H. M. Woodruff, St. Davids, Ont.

As over two and a half million dollars' worth of fruit have been imported into Canada from the United States each year, the embargo just passed by the Government on the importation of such fruits as cherries, peaches, raspberries, gooseberries and strawberries is likely to prove of great importance to fruit growers, and should lead to large plantings of these fruits if the Canadian demand is to be supplied.

The large destruction of fruit trees in Ontario caused by the severe weather last winter, together with other factors that have been affecting the production of fruit in Ontario, is likely to mean that the man with a productive apple orchard of good varieties should make more money out of his holdings in the next few years than he has ever made before.

**Dunlop**  
**GARDEN HOSE**  
"WILL MAKE YOUR GARDEN SMILE"

When you buy Dunlop Garden Hose you not only get supreme service for one season, but have a hose that will last many seasons and be ready for an efficiency test any time.

Years of experience have taught us how to make a smooth waterway in Dunlop Garden Hose and how to protect that waterway with the right kind of cover.

You cannot better "New Improved Hercules" for a General Purpose Water Hose. Dunlop "Peerless Florist" and Dunlop "Spray Hose" have qualities which account for them being in evidence on the premises of discriminating buyers everywhere. That's one reason why you should be identified with it, too.

Your Hardware Dealer stocks Dunlop Hose or can easily get it for you.

Also Makers of High-grade Tires for all purposes, Belting, Packing, General Hose, Mechanical Rubber Products of all Descriptions, and General Rubber Specialties.

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Fall Packing Number

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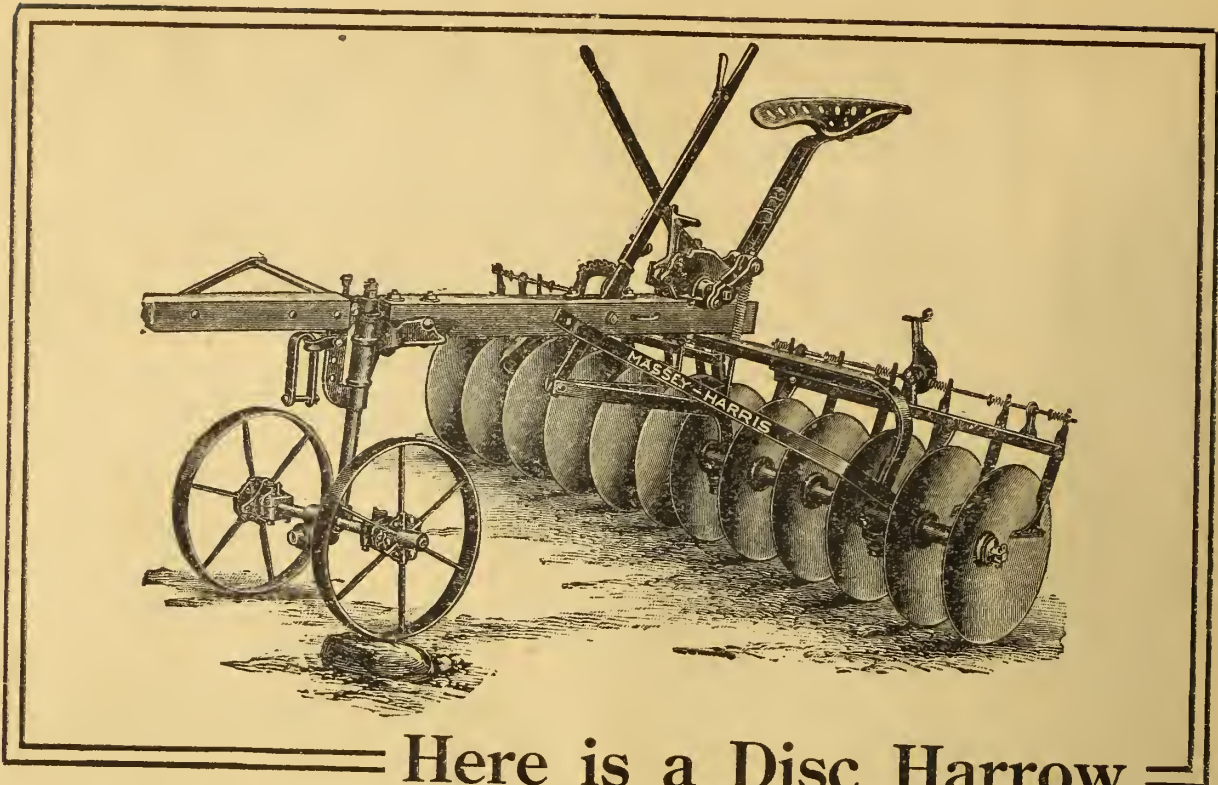
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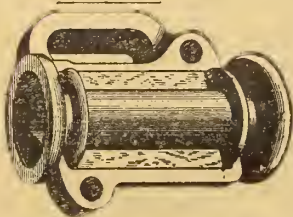
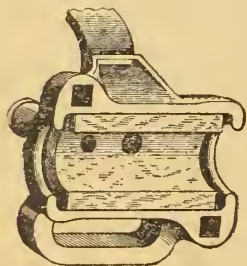
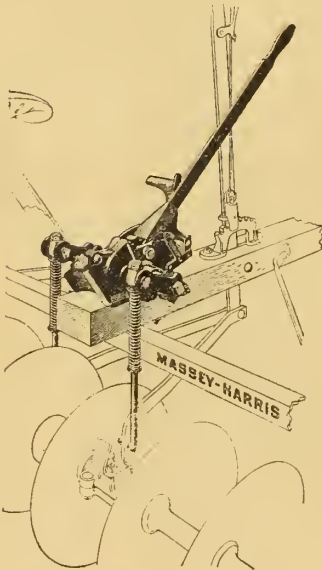
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SEPTEMBER, 1918  
VOLUME 41 NUMBER 9





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Nobody questions the usefulness of a Disc Harrow on the farm. It is almost as necessary as a Plow and as much care should be exercised in its selection. When a field needs the Disc Harrow, you should use one which will cultivate all the surface of the ground, regardless of dead furrows, ridges, etc., and here's the Harrow that will do it.

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# The Canadian Horticulturist

Fruit Edition

Vol. XLI

TORONTO, SEPTEMBER, 1918

No. 9

## Holding the Markets

A. J. Grant, Manager Thedford Fruit Growers' Association, Thedford, Ont.

**P**ERHAPS the keystone in the success of any business enterprise is the development of a good market for the product, and when this all-important requisite has been secured, constant vigilance is required, in order that the market may be held and profitably developed in the face of competition from other quarters. The apple business is no exception to the rule and this branch of fruit growing, or any other for that matter, will only succeed by the application of business methods.

In the palmy days, we, in Ontario, could produce pretty good apples without spraying, but orchard pests have gradually made their appearance until we are now enjoying the presence of many of the most formidable enemies known to science. The quality of apples that Ontario can produce has literally rung around the world so that there has been no difficulty about markets, but unfortunately, we have been allowing the quality to slip back year by year until we are now putting out such a small proportion of good fruit that many of our very best customers are looking elsewhere for high-class apples. Even the cities and towns of Ontario were obliged to bring in large quantities of apples last season because of the unusually small crop at home. This afforded an opening for the high-class boxed apple, which we practically refuse to grow in any quantity. There are many men in the Ontario trade who never handled boxed apples until last season, but they are going into the same game this year a good deal harder because the imported fruit gave such general satisfaction.

### Western Markets.

What about conditions in the Prairie Provinces, peopled largely by easterners, who really want Ontario fruit? This market has been coming to us gradually, but surely, for several

years, but we are now face to face with the grim reality of putting up a fight to hold our markets. We invited much of this competition by fooling ourselves into thinking that people would not pay the price for such high-class fruit, but a trip through the fruit warehouses in any of our cities will soon convince the most skeptical of what is actually taking place. The class of trade which we are losing is the very trade which offers the best returns. It costs very little more to produce a crop of real apples fit for boxing than it does to produce an ordinary barrel-grade running 50 to 60 per cent No. 1. A little more care in pruning, especially the tedious work

as well as the spray calendar, will usually represent the difference.

We have been too ready in Ontario, to submit to the much repeated misstatement that "Ontario cannot produce high-class box apples." We can, and do produce, some box apples fit to travel in any company, and there are sections of this province where color and finish can be produced equal to that of British Columbia and the western United States apples. It would not be necessary for anyone to attempt to point out these misconceptions if we growers had not been so content to go on producing ordinary fruit and allow the other fellow to romp away with our high-class business. What are you going to do about it when an apple buyer in Western Ontario commences to tell you that he can land British Columbia apples in London, Ont., at — per box? He handled them last season with great satisfaction to his customers, and incidentally made some money. Of course, he wants to buy some more and bring them thousands of miles into the heart of one of the best districts for apple culture on the continent of North America. (A well-earned compliment for British Columbia, but pretty rough on the "home folks.") The people demand high-class fruit, however packed, and they are willing to pay the price, but the growers will not produce enough of it in Ontario to supply the demand. We are growing a lot of apples in this province, which can compete with anything in the world, and the men who are growing these are prosperous, but, unfortunately, the bulk of our apples at present must come from the farm apple orchard, and the almost general retrogression of these is the outstanding cause of our trouble.



These Hubbardson apple trees, 28 years old, have yielded 23 crops for their owner, J. E. Allis, of Medina, N.Y., a speaker at the last convention of the Niagara Peninsula Fruit Growers' Association. John Hill, the man who planted them, is shown. He has been in Mr. Allis' employ for 31 years.

among the small branches, so that the trees will admit sunshine and not overload, and more persistent spraying with a keen eye to local weather conditions,

The Ontario farmer measures up to a very high standard and he has naturally tackled the road of least resistance. As it has become harder and harder to get





This Duchess apple tree in the orchard of the Oka Agricultural Institute was well thinned and in consequence produced a fine crop of well grown fruit.

a crop of good apples he has turned his attention to other lines because it would not pay him to purchase spray machinery for the number of trees involved. This train of circumstances has largely produced the neglected orchard problem.

#### A Policy Needed.

If this province is going to stay in the race we cannot afford to allow these thousands of small orchards to die an untimely death—it takes too long to replace them—but we must, on the other hand, develop fruit growers to take hold of collections of these small plantings and bring them back to old time vigor. The leasing of orchards on a grandiose scale has frequently proved disastrous for all concerned, but the opportunities for local leasing are many, and in the experience of the writer, very profitable on both sides of the house, when properly handled.

The merchant says that an article well displayed is half sold, and we might apply this to our line and say that apples properly packed are half sold. Packing is an art, and be it said, to the credit of our brother growers in British Columbia and the Western States, that they have the art of box packing down to a science, and we can do nothing better than follow their methods as closely as possible. We should lend our efforts towards a more general knowledge of box methods because the demand for apples packed in this way is increasing by leaps and bounds. There is nothing mysterious about packing in boxes, given that you have "box apples" to pack, but it is a losing game to pack an ordinary grade of fruit in boxes, simply because they

can be squeezed through under the Fruit Marks Act. While the Act does not require any better grade of fruit in a No. 1 box than a No. 1 barrel, the customer, at the other end expects something a whole lot better, and dissatisfaction all around is the result if he doesn't get it. Apples must have finish, color and uniformity, or they should not be packed in boxes.

How are we going to hold our markets? By producing sufficient really good apples to supply the demand for Ontario fruit and then using such methods of packing and grading as will stand up best in the market to which you are catering. Every season that we fail to do this will give our competitor a golden opportunity to invade our markets, and our trade in general is already getting altogether too familiar with the many good qualities of Western boxed apples. We can produce quality and quantity, too, and it is up to us to do it.

### FRUIT GROWERS' PROBLEMS

Prof. J. W. Crow, O.A.C., Guelph, Ont.

#### When to Plow.

We have some old apple orchards on sand loam soils and clay soils that are now in sod and have not been cultivated for three or four years. Will it be safe to plough these orchards and how late this fall will it be safe to plough them?—H. L.

You should be able to fall plough any of these orchards, but I would advise delaying until October at any rate. The best time to plough is just before freezing up. If the clay land turns over

without breaking up you should run over it with a harrow or disc, otherwise the frost will go too deep.

#### Planting Berries.

Please advise regarding fall planting of gooseberries and raspberries?—T. H.

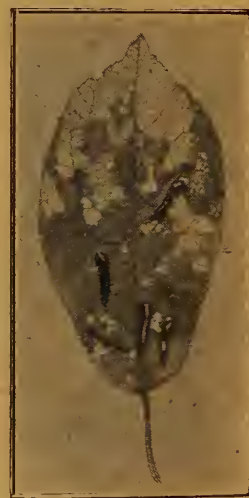
The best season for transplanting gooseberries and raspberries is in fall. Raspberries can be set in September, or early in October. Gooseberries (and currants) can be moved any time in the latter part of October, and early in November or even later if the weather is open. Raspberries are also often transplanted early in spring, but currants and gooseberries can seldom be moved early enough in spring to give complete satisfaction. They often start into growth before the land is ready to work.

#### Pear and Cherry Slug

W. A. Ross, Vineland Station, Ontario.

**D**URING June and July, cherry, pear and plum trees in various parts of Ontario were seriously damaged by a leaf-feeding, blackish, slug-like insect, called the pear and cherry slug. In many orchards, the foliage, particularly of sour cherry trees, was almost wholly destroyed.

There are two broods of this insect. As the second brood is liable to be as destructive as the first, we would strongly advise fruit growers to keep a watchful eye on their cherry, pear and plum trees during September. If the slug again threatens to become injurious, a spray of arsenate of lead (two and a half



The Pear and Cherry Slug.

pounds to 40 gallons of water) should be applied. In instances where there are only a few trees, the slugs may be destroyed by dusting air slaked lime or fine road dust on the foliage.

The Egyptian onion should be planted in the fall of the year. It produces no seed, but instead has a small cluster of bulblets where the seed cluster should be. When they appear ripe, they should be taken off the stem, broken apart, and planted about two inches deep. Shallots are very good onions to have in the garden, and are preferred by some.—Mrs. Dell Grattan, Port Arthur, Ont.



# The Disposal of the Fruit Crop

F. H. Grindley, Acting Fruit Commissioner, Ottawa, Ont.

THE marked success which has attended the sales method of the great fruit marketing organizations of the Pacific Coast states, in which publicity campaigns have played an important part, has led our Canadian growers to wonder if similar methods might not be adopted in Canada with equal success. Some efforts in this direction already have been made. That there is much to commend these is brought home to us every now and again when we run across statistics showing the amount of money spent annually on publicity by other industries. When we stop to consider these enormous expenditures, some of us may wonder whether or not the sales resulting from them are really sufficient to make such advertising profitable. And yet, on the whole, it must be so. Long established commercial organizations, after much experience, would not be advertising as extensively to-day as they are were it not a paying proposition. Of course there are many things to be taken into consideration in the judicious and effective spending of an advertising appropriation; the mediums used, the selection of space, the composing of the "copy", both as to wording

and design, and other similar points. These require sound judgment and experience. The man who writes advertisements knows that human nature is impressionable; he knows that 97 per cent of the people believe what they read; he knows that the oftener you repeat a statement the more likely it is to be remembered, and he acts accordingly.

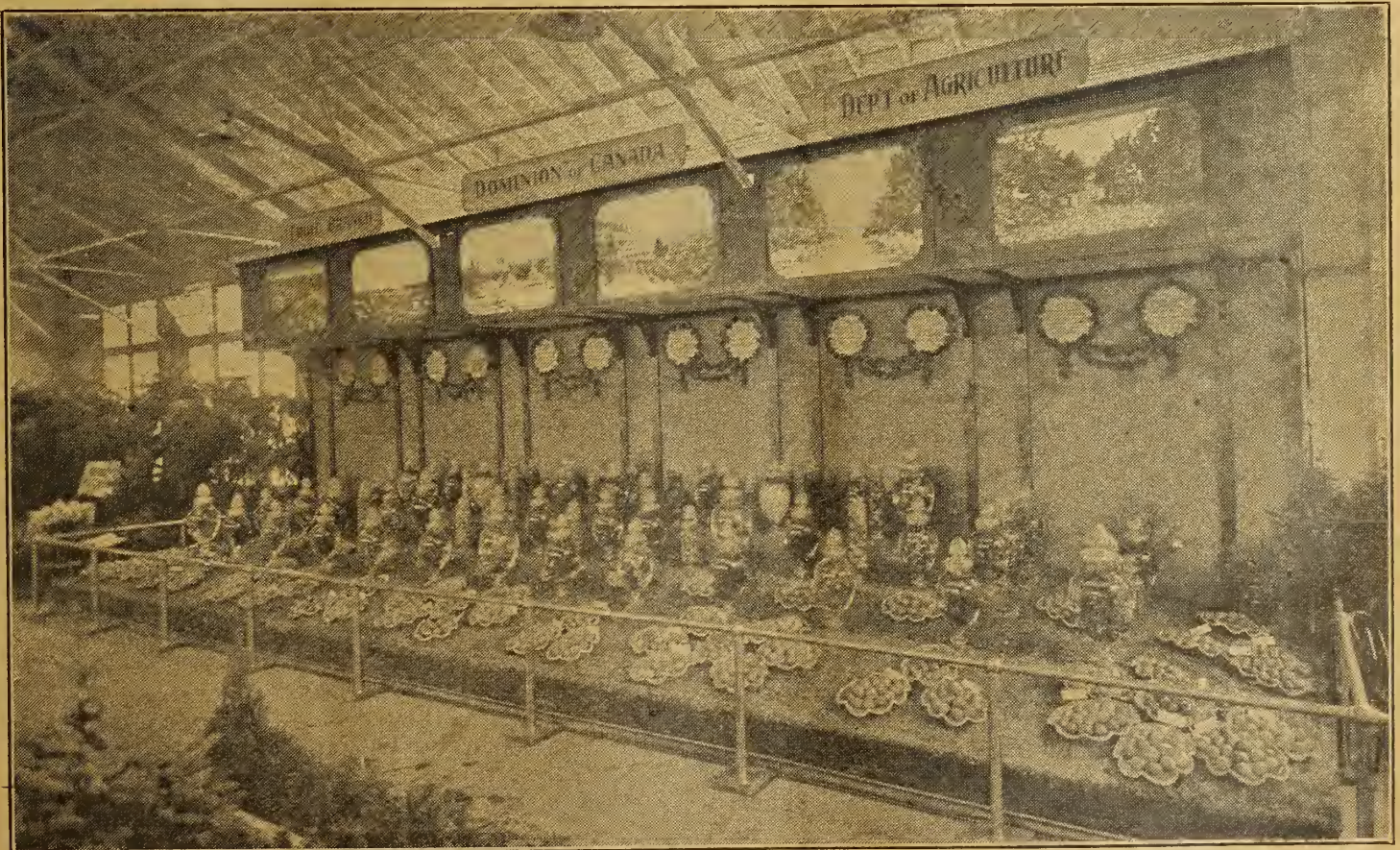
What is the one big object back of it all? To fix in the public mind and the public eye a trademark, or a name, or a catchy phrase. Then to keep this name or this trademark so constantly before those to whom you are appealing, that when they make purchases they will almost unconsciously name your brand.

Many people claim that they do not read advertisements. Don't believe them. Ask them whether they know what any of the following terms stand for: "There's a Reason," "Chases Dirt," "Sunkist," "57 Varieties," "His Master's Voice," "The Skin you Love to Touch," "Hasn't Scratched Yet," "Comes out like a Ribbon," "Makes Child's Play of Wash Day," "The Sweetheart of the Corn," and a score of others.

"All this raises the question of the advisability of our advertising Canadian grown fruit and particularly apples more extensively and systematically. It is a fact that comparatively few people realize the extent and importance of our fruit industry, the amount of money invested in it, where the fruit is grown, how it is marketed, the need for increasing consumption, other and similar points. Some publicity work has been done. Those who attended the San Francisco Exhibition in 1915 may remember the Canadian fruit exhibit there. Similar exhibits have been shown on other occasions, but these are at comparatively long intervals and do not by any means attain sufficient results.

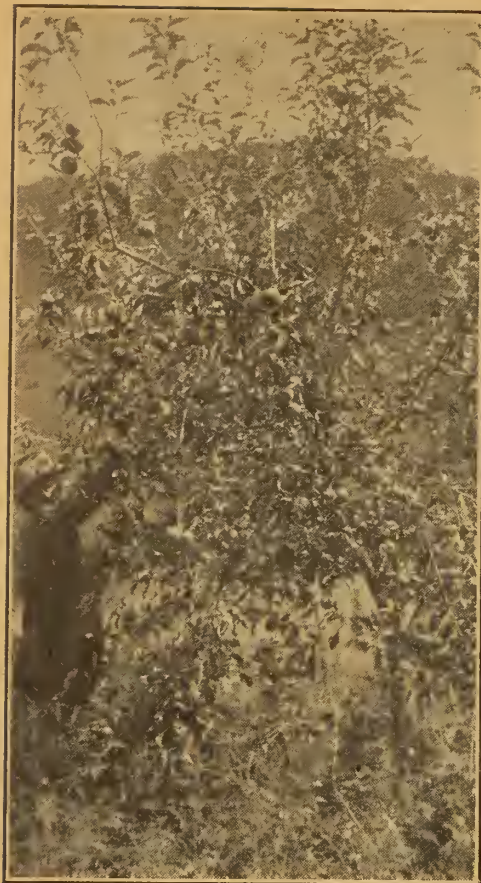
## Not Work of the Government.

It is a common opinion that extensive advertising of this nature should be done by the Dominion and Provincial Governments. That opinion is neither justified nor fair. These Governments have done, and are doing, much to benefit the fruit growing industry; probably they are doing more than many individual growers realize. But the policy of governments is to assist



This exhibit of fruit, made by the Dominion Fruit Division, at the Canadian National Exhibition, was most striking and attractive. The illustration does not do it justice. The specimens of fruit shown in the glass jars were particularly fine. It was shown under the direction of Mr. P. J. Carey.





A well loaded tree yielding its returns.

along educational lines, to encourage better methods of production, to extend markets, facilitate economic distribution, and aid in other similar ways. Commercial advertising should more properly be done by those who will immediately benefit from it, namely, the marketing associations and individual shippers throughout the country.

There never was a better time than the present to take this question up along sound business lines. Strenuous efforts are being made to conserve certain essential foodstuffs for shipment overseas and to encourage the use of substitutes; fruit is one of the most important of such substitutes. The demand for fruit has increased steadily ever since the war began, but unfortunately the Canadian fruit crop, and I refer particularly to the apple crop, has been light every year since 1914. These poor crops have been partly due to neglect on the part of the growers themselves, but as nothing will encourage a better system of production more than high prices, and as prices for fruit have been steadily going up, we expect to see fruit growers return to their former methods, expensive though they may be.

Picture what might happen in this country if we should have a large apple crop in Ontario, Nova Scotia and British Columbia. With an embargo on shipments to Great Britain and Australia,

practically the entire crop would have to be consumed in Canada. And when we realize that an average apple crop represents approximately 15,000,000 bushels of apples, we must also realize that the channels of consumption would have to be greatly increased to dispose of such a quantity of fruit.

Publicity has become an important, if not an essential part of the Canadian fruit industry, and the time for definite organization work is right now. There are many fruit growers' associations in Canada whose membership list contains most of the better growers in the

various provinces; these men are therefore fairly readily accessible, and as they are the ones who are going to benefit, they should be willing to "foot the bill."

The advertising of Canadian fruits at this time is a matter which should be carefully considered. If a definite policy could be arrived at, satisfactory to the five fruit-producing provinces, then the annual consumption of Canadian fruits could very easily be doubled, and the cost of such publicity, to the individual grower, be comparatively insignificant.

## Styles of Box Packing

WHEN packing apples in boxes there are three styles of pack to choose from, viz.: the "straight," "diagonal," and the "offset." The first is simply a pack made by running the rows straight across the box. This pack presents a very neat and attractive appearance. According to the size of the apple, this straight pack may be a three, four, or five tier. Of course, the first will consist of the largest apples, and the last named the smallest. The apples may be placed stem end or blossom end up, or it may be placed on its side. As the fruit is more uniformly colored on the sides, especially in the east this method of placing the fruit on its side makes the best showing when the box is opened.

The "diagonal," or "diamond" pack as it is sometimes called, takes its name from the oblique course of the apples when placed in the box. This pack is much preferred by growers to the straight pack, as the method of placing prevents them from bruises better than the straight style.

The "offset" is a style somewhat similar to that of the diagonal pack, with the rows running lengthwise, although it is not regarded as being as attractive as the diagonal, since the stems are not turned in the same direction. By the diagonal pack, the large spaces occur at the ends of the package, while by this style it occurs at the sides, which in the end will not give the purchaser as many apples as he would get if he purchased fruit packed in the other styles. This being true, the offset style should not be practised excepting when the size of the fruit necessitates it. Government bulletins, which may be had free for the asking, describe these packs fully.

### Marking or Labeling.

Whether the package used is a barrel or box, the grower should never let it go to market without bearing the proper markings. While a colored lithograph label is desirable and adds to the attractiveness of the package, it is the

inside of the package that after all determines the price the fruit will bring. Upon every package the name of the variety, with the grade, and if the package is a box, the number of apples it contains should never be omitted. If a grower takes pride in his packages and is proud of his pack, he will be interested in building up a reputation. In this event, he should by all means have a specially designed colored label of his own trademark and thus familiarize his customers with his private label.

## Ward off Rabbits and Mice

Rabbits and field mice are two dangerous rodents that orchardists should combat during the fall and winter season. Last winter's severe cold did not destroy as many of these rodents as was generally expected; the loss due to these pests, too, was considerably higher than in former years. Prevention methods should now be adopted.

Keeping all the grass hoed from 18 to 24 inches away from young trees leaving a barrier of dirt is effective in dealing with field mice. These rodents work under grass almost entirely but make no passageways through exposed patches. This will keep the field mice from working at the most exposed root portions of young trees. Coal cinders may be used as a surrounding barrier of the tree; they should cover all the ground up to an 18-inch radius from the trunk and to a depth of two inches.

A protector extending around the trunk made of wire netting with a one-fourth inch mesh and 24 inches in height is effective in keeping rabbits from gnawing the bark of apple trees. The protector should extend into the ground for several inches and be kept on until the trees are five years old. Rodents often do much damage during September so that protection provided now may save much, orchardists say.

The black raspberry succeeds best on warm, light soil.—W. T. Macoun.



# Picking, Grading and Packing Apples

Robert S. Walker

**J**UST when is the proper time for apples to be picked, in a large measure depends upon the judgment of the individual grower. Some growers who advocate the determination of the proper time to pick apples wholly by the appearance of the seeds, for example, in the case of yellow varieties they are ready when the seeds begin to turn a light brown color. There is no single rule that will fit all cases. This does not mean that there is not a proper time to gather apples. As a general rule, however, when the fruit snaps from the stem, it is ready for harvesting. In all events, the fruit should be left on the trees until it has taken on the greatest amount of color. But each individual grower must study his own orchard, and varieties then exercise his judgment in his own case.

Before the fruit is ready to harvest provide an ample supply of orchard ladders, also buckets or picking bags, according to the size of the orchard. There are many convenient devices on the market, representing specially constructed fruit ladders, and picking bags and buckets, that are really meritorious, some of which are advertised in *The Canadian Horticulturist*. Any device that will enable a grower to gather his fruit skilfully, and save the fruit from bruises, is worthy of investigation. It is absolutely essential that growers take the preliminary precaution to see that the fruit is gathered in such a manner that a minimum amount of handling is done. This one point in the success-

ful marketing of apples might be laid down as the keystone upon which other precautions rest. In no event is the fruit to be permitted to fall to the ground, thrown into a bucket or other receptacle, but the utmost care should be exercised in handling the fruit so that even the finger nails do not break the skin.

## Grading the Fruit.

A grower who has an orchard of sufficient size, should by all means provide a special packing house with the best equipment. The most important step in apple packing after the fruit leaves the orchard, is that of the proper and careful grading of the fruit. Unless this part of apple growing is carefully attended to it is almost useless to proceed further if the crop is expected to be marketed at a profit. Operators of coal mines have a grade of coal, called "Run of Mine," which is a mixture of all kinds and this kind of coal is not in general demand and brings next to the lowest price of any grade. In like manner, the apple grower, who does not grade his fruit, may expect one grade, "the run of the orchard," and he must make up his mind to be satisfied with a very cheap price for his product, and worse still, a poor reputation as a grower of apples. It is at this stage of apple growing where the grower in reality fixes the price of his product. Neglect to properly grade the fruit results in a serious loss to the grower and often in a corresponding gain to the dealer who buys and grades the crop.

The first requisite in grading, is uniformity in size, color, and shape. The second requisite is freedom from scale, scab, or any other blemishes on the surface of the fruit. Though fruit of one variety may be uniform size if the color is not uniform, the fruit should not be put into the same package. Where a grower's orchard is of sufficient size to warrant special packing machinery, it is highly advisable to install a modern apple grading machine which will soon pay for its original cost. Hand grading according to size may be satisfactory, but it cannot be recommended as equal to that of a first-class grading machine. A grower should arrange his grades in accordance with the new provisions of the Inspection and Sale Act, which provides for and defines four grades, the first as "fancy," "No. 1," "No. 2" and "No. 3." By adapting a standard as followed by successful orchardists and associations, it is easy to soon build up a demand for your fruit, and the returns from the crop will be increased.

## Barrel Packing.

If possible use new barrels. An old unclean second-hand barrel may cost more than a new package. Clean, bright barrels always help in the sale of the fruit at the best prices. If it ever becomes necessary to use a second-hand barrel, it should by all means be thoroughly cleaned, and then used for the poorest grades only.

See that the apples are faced nicely in each barrel. In selecting the fruit for this purpose, the same kind of fruit should be used, no better fruit than that the buyer will find throughout the barrel. Otherwise be warned, "the fruit inspector will get you if you don't watch out." Select apples of uniform size and place them stem end down. It is better to use two or three layers in the facing than one. When opened, apples with stem end up, always present a good appearance.

When depositing the apples into the barrel never pour the fruit into it but lower it carefully to prevent bruising. At intervals in filling, the barrel should be rocked severely. This rocking packs the fruit snugly so that there will be no "settling" after the barrel is full and the head put in.

## Tailing the Barrel.

Tailing a barrel of apples is an act in itself that is acquired by practice. The apples should be placed in regular rows with stem ends down so that when complete the fruit extends above the top of the barrel. With a screw press the head of the barrel is forced into the chimes. This pressure employed to close the barrel forces the fruit down snugly, and no matter how often the package may be handled in transportation, the fruit will not shake about in the barrel and become bruised.



These packs illustrate the "offset," "straight" and "diagonal" methods of packing apples in boxes.





When apples are packed loosely in barrels in the orchard and hauled to the packing house for repacking, they must be handled with care to avoid bruising.

Just whether the barrel or the box is the proper package for the grower to use depends largely upon the quality of the fruit and available markets. It pays to pack only the best grades of apples in boxes. The grower must exercise his own judgment and ascertain just what kind of packages of fruit brings the higher prices in the markets where he

offers his fruit for sale. The box package is growing in popularity, in the large cities. Despite its popularity it has its drawbacks, and the grower who chooses to adopt the box package, must know that it requires more skill in packing apples in boxes than in barrels. A grower should be certain that the box he purchases is of the standard dimensions.

## Moisture and Rich Soil Celery's Prime Needs

C. L. Shaw, Victoria, B.C.

**"A** RICH soil and plenty of moisture" are essentials in successful celery culture. Nevertheless, despite the emphasis constantly placed on their importance, they are often overlooked. In nine cases out of ten the two factors spell the difference between success and failure.

Probably in no instance is this statement more applicable than in the case of celery. Given a weak soil, celery cannot thrive. The same result is sure to result from indifferent watering. Plenty of moisture and rich ground are the two cardinal considerations. This was emphatically impressed upon me by a British Columbia grower, whose average revenue per acre of celery figures out at nearly \$2,500, and who claimed that water and fertilizer judiciously applied had done the trick practically unassisted.

Out on the Pacific Coast April is considered a good month for starting celery for the fall and late summer markets, and as these are the markets most extensively supplied my remarks will particularly concern the growing of the earlier crops, although the cultural methods do not really vary a great deal for winter production. The only big

difference, after all, is the later planting time—July to early August.

Don't be afraid of getting the soil too rich. There is a variety of good fertilizers that will do. The compost heap that has accumulated during the past few months, chicken manure and ashes form an ideal base, and well rotted stable manure has proved an exceedingly valuable soil ingredient in the celery bed. Get well-sized, stocky plants and judge the size at the base rather than at the top. Get them with strong, numerous roots, because transplanting is bound to destroy some of the roots and the plants that have the best root growth are the ones that will get the best start and develop the fastest.

### Width To Set.

Celery men differ as to the width apart the plants should be set. Some place the rows as much as four feet apart, but there are others who are getting equally good results by cutting spaces down to from six to ten inches. It all depends on the method adopted for bleaching. I have known some men to cut the tops off plants just before transplanting, but they are the exception. It is a good plan, however, to

trim the roots. The driest weather should be selected for planting time and sundown is the best time of day. Get the soil in the holes or rows thoroughly saturated with water. Surface watering after the plants are set out is practically useless.

During hot weather boards set up perpendicularly or at a slope along the side of the rows will give ample protection to the young plants. Thorough cultivation and plenty of water, with now and then a light dressing of nitrate of soda, will keep things going for a few weeks. It should be the grower's first care to keep the plants growing upright. This can be done by working the earth around the plants with one hand, while holding the stalks together with the other. Do not attempt to cover the stalks. The operation is merely to prevent the outside leaves from spreading out flat.

There are several blanching systems being advised, but the use of earth is now generally recognized as being the easiest and the producer of the best-flavored celery. For fall crops the blanching should begin as soon as the plants seem to have got a strong grip on the ground and when they are about six inches above the surface. The earth should be kept on a level with the base of the leaves, and the banking should be done only when the plants are dry. The celery for winter use should be left growing in the green state, to be trenched or stored in the cellar or frame of root pit later on.

The only enemies of celery are the celery caterpillar, which is not really a very serious foe and can usually be kept away from the crop simply by hand picking, and rust or blight, which can be prevented by the use of Bordeaux mixture, although ammoniacal copper carbonate solution is preferable, as it does not disfigure the foliage. Again: Be sure the soil is rich in the first place and, after that, keep it moist.

## Picking Exhibition Apples

**I**N selecting apples for exhibition, pick specimens well colored for the variety, but neither punky nor monstrous in size, true to varietal form, and uniform in color, size and form.

All apples should be entirely free from insect and disease injuries or blemishes and bruises, and should possess their stems and waxy bloom.

In shipping, wrap each fruit with paper, and pack carefully in a rigid receptacle properly addressed, and labeled "Perishable." Bruises occurring during shipping count against the fruit, but in a much less degree than the preventable injuries and blemishes.

Label all the varieties so that any one not acquainted with fruit can name and enter them correctly.—R.W.



# Pruning the Gooseberry

By J. McPherson Ross, Toronto

**A** LONG with the Currant bush in the majority of gardens, the Gooseberry has not the attention paid to its pruning that the value of its fruit entitles it to. Or, if pruned at all, it is usually done without any definite system as to the future growth or fruit-bearing requirements. Provided with a good pair of leather gloves and a secateur or pruning clippers, it takes a good deal of determined patience on the part of the pruner to properly and intelligently trim and subdue a neglected three or four-year-old gooseberry bush. It is generally surrounded with a hedge of suckers intermingled with the old bearing branches above, and to bring order out of this maze calls for all the patience and skill of the operator, who when he has brought a neat and orderly bush out of this tangled wildwood, is certainly entitled to the glow of satisfaction he naturally feels as he surveys his handiwork.

Much of this work may be avoided if the bush is properly pruned at the time of planting, or, if the bush or bushes when brought from the nursery had all the dormant buds cut out of the rooted stem to at least 4 to 5 inches above ground level when planted. This would prevent any shoots or suckers coming up from the bottom of the growth, leaving a distinct little tree, as it were, on an independent trunk, making it easy always to trim and keep in order.

This is the practise of all the old country growers in handling all currants and gooseberries who, when they make the cuttings before planting, care-

fully remove the buds below ground level.

To proceed orderly from the first planting, the young bushes should be trimmed back to three or four buds on each stem, leaving three main branches to form the future head. As the new growth starts, pinch back to three buds all shoots but three or four, leaving these to have all the vigor of the plant to be centered in their growth for the first season. The second year these main branches are then cut back to four inches, when two new shoots are allowed to grow, which will leave six shoots for the plant at equal distances radiating from the main stem. The third pruning consists in cutting back about one-half the length of these branches, so as to create lateral branches and fruit spurs. The fourth pruning is to shorten the leaders a third to one-half and thin out such laterals as are too thick and shorten others to produce fruit buds.

This system may be followed yearly unless the plant becomes stunted or weakened from overbearing, when the whole head may be severely cut back to produce new wood entirely.

In treating an old neglected bush with a mass of suckers growing from it, take the spade and remove the soil neatly around the plant in order to cut the suckers away from the main trunk and as close as you can. Any suckers having roots may be set aside for planting after cutting out the eyes. Shorten the top to make a new plant, if the variety is a good sort and worthy of propagation. Then cut out all the old wood,

leaving only the two-year-old wood and last year's strong shoots. Shorten these also to half the growth. By thinning out all over the superfluous growth, you should have a compact, evenly divided plant, sturdy and neat in appearance.

The gooseberry delights in a rich, clayish soil, cool and damp. If not naturally sad, the soil should be heavily mulched with any substance that will render it so. Anything will do, even to old boots, if plentiful enough, so long as it will help to keep the ground cool and moist. The soil must, of course, be kept free of weeds, but as the plant throws its roots close to the surface, do not cultivate too deep. One point the grower must keep in view is to have plenty of foliage to prevent the fruit from being sunburnt, or scald, as it is termed, and a sharp watch must also be kept for the currant worm, which makes its appearance as soon as the foliage is developed. A dusting with Hellebore in the early morning while the dew is on will prevent its ravages.

The cultivation of the gooseberry in the old country, where it is one of the most popular fruits, is carried to a high degree of excellence. There the climate is ideal for it, being cool and having plenty of moisture. Here in our climate, where fine varieties are so subject to mildew, it makes the cultivation of the fruit almost impossible. Only where great pains are taken to mulch the soil heavily to keep the roots cool and moist is the production of the best fruit possible. The gooseberry requires lots of manure in the soil. Like the currant, it is a gross feeder, and when such requirements are supplied as good cultivation, careful and regular pruning with plenty of manure, the returns in fruit



Cellars are a good place in which to grow mushrooms if the temperature can be maintained between 40 and 65 degrees. Fifty to 60 degrees is better. The spawn may be purchased and planted during September and will yield a crop in January and February. These mushrooms were grown at Ardwood, the Toronto residence of Sir John and Lady Eaton.



# Prepare for Next Year's Crops

H. J. Moore, Queen Victoria Park, Niagara Falls, Ont.



A crop of cauliflower worth having. Grown by Mr. Williams, of Peterboro.

yields fully justifies the effort. Such American varieties as Downing, Pearl, Chatauqua and Josselyn have a freer habit in growth and are free from mildew, while the English varieties, such as Industry, Whitesmith, Crown Bob, etc., have a shorter or sturdier growth and succeed fairly and give good crops the first few years, but unless well looked after as to pruning and manuring, etc., and above all heavily mulched, they soon get mildew and gradually deteriorate.

## Parsnips in Winter

H. J. Moore, Niagara Falls, Ont.

**P**ARSNIPS are a crop which without protection may endure our winters without harm, and as they are available during winter and spring when other vegetables are scarce, their cultivation should not be neglected.

During severe winter weather, when the ground is frozen hard, it is impossible to obtain the roots without injuring them, therefore, dig a number with a fork as late as possible during the fall and store them in earth or sand in a very cool place. A position in a cellar where the temperature is only a few degrees above freezing is ideal. The bulk of the crop will keep splendidly in the open ground, except, perhaps, in extremely cold districts where a little protection may be necessary. Parsnips from the open ground may be used during spring until almost three inches of leaf growth has been produced, when the roots become unpalatable.

Parsnips which were left in the garden last fall or were planted during the spring for seed purposes by now will have produced seed. If they have not been collected, see to this at once, otherwise the seeds may be removed by the wind and be lost.

**N**EXT year food production will be more necessary than during the present as there will be more mouths to feed overseas and fewer hands to produce it in Canada and the United States. How then are we to produce more food stuffs? As far as the readers of this article are concerned by producing more upon the plots they cultivate, through the proper preparation of the soil this fall.

Now is the time to buy stable manure to lighten and to enrich all heavy soils. If heavy loams are well manured at the rate of at least fifteen tons of stable manure per acre and dug or ploughed according to their size, they will be in splendid condition for cropping next spring. The action of the frost will pulverize the soil and your plot will be easier to prepare. The simple operation of working your soil, if heavy, during the fall will, if you have never previously tried it, reveal to you possibilities in the production of vegetables of which you never dreamed it was capable.

Perhaps you are thinking of cultivating more land next year? Now is the time to break up new plots. Do not wait until April or May. When sod is turned under during the fall, considerable decomposition will take place by spring. This decomposition will continue during the entire growing season, and the food materials which are formed as a result of this and of subsequent nitrification will be at once available for the use of the crops. New plots which are broken during the spring do not usually yield abundantly as the sod or other vegetable matter does not decompose in time for the use of growing crops. It decomposes most quickly under the influence of moist soil conditions of the late fall and early winter with the result that as there is no crop to absorb the food salts which are formed, these are washed away during the winter and early spring in the drainage water, which seeps into the subsoil, or flows unrestrictedly into drains or ditches. Break new plots in the fall always. In six or seven months the humus will yield its food materials in abundance, just when the crop requires them. Break new plots in the spring and the humus will likewise yield its food materials in abundance in six or seven months, but alas too late.

### Fertilizers to Use.

Stable manure is so scarce that only one in ten can possibly obtain it. Stable manure is the best natural manure as it contains all the elements which the plant requires from the soil, and in abundance. There is, however, a substitute for stable manure which we may utilize, and that is the sod of old pas-

tures, commons and many tracts of land which have lain idle for many years, and which, if ploughed this fall, would give of their fertility in time to augment the food supply of next year. In this way the need of stable manure could be greatly overcome, and exigencies which may arise be very likely met by increased production.

### Acid Soils.

Late fall is the time to remedy an acid condition of the soil. Many small plots suffer through this cause, some as a result of overmanuring, others through bad drainage. Acid plots will not produce good crops. First remedy the drainage by surface ditches or underground tiles, then apply lime in the carbonate (slaked) form. Spread this over the surface and dig the soil, leaving the surface rough over winter.

Some plots which are not acid would be greatly benefitted by an application of lime. As well as sweetening soils it has a desirable mechanical effect, it lightens heavy soils and consolidates light ones. Apart from this, lime is a direct plant food, and it is one of the four most essential to the plant. In the ash of certain plants as much as forty-three per cent of lime is found.

Lime is also an indirect plant food, or at least a constituent. It unites with feldspar or clay and sets free alkalis of such importance as potash. Lime acts upon vegetable matter in the soil and sets free valuable ammonia, and water, not in a few minutes, but extending over a period of many years, as its action in the slaked form is very slow and gradual. Think of the importance of lime to plots; think of the importance of applying it during the present fall. If you have no conception of its importance think in terms of ammonia, potash and water, plant foods or aids the growth which it releases in the soil. Put this advice into practice and next year you may harvest larger crops than ever before.

Is it necessary to apply lime to the soil every fall? No. A good liming every four to eight years may be sufficient. Ten bushels of lime per acre is adequate. Therefore, if you are certain that lime has not been applied to your plot during the last four years or so, apply it at the above rate, one bushel to one-tenth of an acre.

## Preserving Green Tomatoes

Every woman is familiar with the preservation of green tomatoes in chow chow, piccalilli, plain and sweet pickles, but there is usually a surplus after these products are finished, and these should be canned to be used later



in making pies, marmalade, butters, mince meat, or simply as a vegetable.

Remove stems, wash, and drain the tomatoes. Pare them and remove all inedible parts. Slice or chop them and put in an acid-proof vessel, adding one level teaspoonful of salt for each pint of tomato.

Set the vessel on the back of the range or in a mild oven, where it will receive only a moderate amount of heat. Add no water, but allow the tomatoes to cook in their own juices, stirring occasionally to prevent sticking. They must cook until thoroughly done, not less than an hour.

Have the jars sterilized and the rubbers on. Keep them hot until the tomatoes are ready; then fill the hot jars with the hot fruit, seal tight, and when cold wipe and set away for future use.

## Radish Diseases

C. L. Shaw, Victoria, B. C.

Four diseases from which radishes suffer are commonly known as damping off, root knot, black rot and scab. Damping off does great damage to young seedlings, the effect being to wilt and kill the plants just after they have begun to shoot up. It is caused by sowing the seed too thickly or when the soil is too moist.

The minute eelworm causes the galls and swellings on the radish roots known as root knot. The effect is a general stunting of growth. The eelworm is introduced with infected soil or manure.

Black rot is a bacterial disease that attacks the roots, the white varieties being more subject to its depredations. The disease is also introduced with infected manure.

The scab on radishes is a result of the activity of the same organism which attacks potatoes and the effect on both is similar. Scab originates in manure containing the peelings of infected potatoes.

As a preventive of all these diseases soil sterilization is the only sure measure, and the formaldehyde treatment is now being recommended. If this method is used, the soil should be saturated with a solution of one pint of pure formaldehyde and twenty gallons of water, applied at the rate of one gallon to each square foot of bed space. The treatment is usually applied about a week before planting time.

## Best Fertilizers

Would you kindly answer the following questions: 1. Which would you prefer, commercial fertilizer or manure for gardens in fall? What kind of fertilizer would you suggest, to be most pure and free from weeds? 2. What rose do you think the best for our parts, as a climbing rose? 3. Would you advise putting strawberries in the same ground twice? 4. Where could one procure good seeds for fall sowing in "sweet peas, garden peas," etc.?—B. C. B., Hanover, Ont.

The best fertilizer to apply to a garden in fall is fairly well rotted barnyard manure. Commercial fertilizers are best used in spring applied to the surface of the soil just before seeding, and forked or raked, or hoed in lightly. Or better still apply this to the soil after crops have been started a week or two. The fertilizer should not be sprinkled on the foliage. Commercial fertilizers are of very little value applied to land in the fall, as their action is of too stimulative a nature. The barnyard manure should be prepared now by throwing it into a pile allowing it to ferment, and then turning the outside to the inside when turning. The

## Storing Vegetables

A subject of great importance to vegetable growers each fall is, "What is the best form of root storage house, and at what temperature should it be maintained." Among the readers of The Canadian Horticulturist are many who have had success in the storage of vegetables and whose experience, could it be made known, would be of great benefit to others.

In order that we may obtain the benefit of their experience The Canadian Horticulturist offers three prizes of \$3.00, \$2.00 and \$1.00 for the best short articles not exceeding five hundred words on this subject which reaches us by September 25th. If the response justifies such action further prizes for articles on other stated subjects, will be offered in later issues.

turning should be repeated twice at intervals of ten days. This method will kill all weed seeds in the manure.

There are several good reliable climbing roses, Crimson Rambler (dark or crimson), Dorothy Perkins (shell pink double), Hiawatha (red and white, single), a beautiful free flowering variety. These are the three best climbing roses for the northern sections of Ontario.

Strawberry plants should not be planted in the same ground twice in succession. The ground should be cropped for at least two years with crops of potatoes or any hoe crop, and the ground well fertilized each time before cropping the ground with strawberries.

I cannot recommend any one firm particularly for good seeds. Consult those whose advertisements appear in The Canadian Horticulturist. It would be best for you to obtain catalogues from different firms. Some firms make a specialty in various lines. I do not recommend fall sowing of sweet peas or garden peas. The results are uncertain and often disappointing.

Be careful to grade and pack apples well for market. Only firm, sound fruit should be used and this should be of uniform size and quality, no matter whether the box or barrel is used.

Wire pails, half bushel size, are the proper receptacles for use in picking potatoes. They are light and allow the dirt to drop through, so that very little is carried into the cellar.—Douglas Maynard, Leamington, Ont.



A yield of onions that is helping to solve the problem of increased food production. (Photo courtesy Geo. Keith & Sons, Toronto).



# The Canadian Horticulturist

COMBINED WITH

## THE CANADIAN HORTICULTURIST AND BEEKEEPER

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The Canadian Bee Journal.

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Official Organs of the Ontario Fruit  
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**FRUIT EDITION:** This edition is devoted  
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THE CANADIAN HORTICULTURIST,  
PETERBORO, ONT.

## EDITORIAL

### Assist the Fruit Industry

The fruit industry in Ontario is in the  
most serious condition it has occupied for  
many years. This is due to a combination  
of circumstances. For four years the fruit  
crop on the whole has been disappointing.  
This of itself would have been serious.  
Added to this, however, there has been the  
rapidly advancing cost of supplies of all  
kinds; the 40% increase in freight rates,  
and the difficulty of obtaining fertilizers  
and other supplies due to the material in-  
crease that has been made in the tariff  
since the outbreak of the war. In addition  
to all this there has been the disturbing  
effect the fruit embargo has had on market-  
ing conditions during the past few years.

As though all this was not enough, it has  
seemed as if the climax was reached recently  
through the inability of householders to  
obtain their customary sugar supply for  
preserving purposes. This greatly curtailed  
the demand for fruit and consequently  
the prices dropped at the very moment when  
fruit growers were hoping to receive at  
least a fair return for their crops. So serious  
was the effect of the unexpected sugar  
shortage that the price of plums dropped  
almost one half, as where fruit growers  
were obtaining one dollar and seventy-five  
cents for an eleven quart leno basket, the  
price went down to one dollar. Plums that  
were selling at sixty-five cents for a six  
quart basket dropped to thirty-five cents.  
The effect was not quite so serious with  
pears. They dropped from a ruling price  
of one dollar for an eleven quart basket to  
seventy-five cents. How unsatisfactory con-  
ditions are for fruit growers is indicated by  
the fact that in spite of the conditions men-  
tioned, peaches, which are a scarce crop  
this year, have not realized as high prices  
as they did a year ago when the crop was  
larger.

How serious a burden the increased  
freight rates are imposing on fruit growers  
may be seen when it is stated that last  
year the rate per one hundred pounds, from  
the Niagara District to the West on a  
twenty thousand pound minimum car was  
sixty-six cents or one hundred and thirty-two  
dollars for the car. To-day the rate is one  
dollar, four and one-half cents or two hun-  
dred and nine dollars for the car. The cost  
of icing has also advanced from two dollars  
and fifty cents to three dollars a car. The  
rate to Montreal last year on a six quart  
basket was three and one-half cents, or  
seven cents on an eleven quart basket. To-  
day the rate is five and one-quarter cents  
instead of three and one-half cents and ten  
and one-half cents instead of seven cents.

While many industries have profited as a  
result of the War the fruit industry has  
proved an exception. The conditions men-  
tioned as prevailing in Ontario exist to much  
the same extent in Nova Scotia and British  
Columbia. It is unfortunate that Canada  
should have lost its Dominion Fruit Com-  
missioner just at this time. Farmers have  
succeeded in having a minimum price set  
for wheat and are asking that similar pro-  
tection may be given them on the price of  
oats and barley. Something should be done  
to assist the fruit growers, either in the  
way of lowering the cost of their raw ma-  
terial by reducing the tariff or assisting

them otherwise in the production of their  
crops. It would be disastrous to the best  
interests of Canada if the fruit industry was  
allowed to decline at this time through  
failure to extend it such needed assistance.

### The Time to Act

The estimate made by the Canada Food  
Board that the production of the war gar-  
dens of Canada for 1918 should be worth  
about \$50,000,000 affords ample justification  
for the efforts that were put forth to en-  
courage this form of production. When it  
is realized that the campaign was not  
launched in earnest until last spring and did  
not become active in many districts until  
too late to make possible the obtaining of  
maximum results, the fact that the returns  
have been so is all the more satisfactory.

No matter whether the war ends this win-  
ter or not, and such a prospect is none too  
encouraging, there will still be a great need  
for war gardens during 1919. We should  
not repeat, therefore, last year's mistake.  
Instead, the campaign to encourage not only  
the maintenance but the extension of this  
form of production should be launched in  
earnest this fall. A large percentage of  
those who kept gardens this year are pre-  
pared to continue the work next year if the  
ground furnished them by their municipal-  
ities or neighbors will again be available.  
Growing out of the success their neighbors  
and friends have achieved many other people  
might be led to emulate their example were  
the way to do so made easy for them this  
fall. Much of the work of cultivation can  
be completed with better results in the fall  
than in the spring. Everything that it is  
possible to do in this direction should be  
undertaken immediately, not only by the  
Dominion and Provincial Governments, but  
by municipalities and by the various asso-  
ciations which have largely directed the  
work in the past.

### Box Pack Ontario Fruit

The light crop of fruit in Ontario this year  
and the practical certainty that importations  
of fruits from the United States will be  
lighter than usual, leaves an opening for  
Ontario fruit growers to take advantage of  
the rapidly growing demand for high class  
boxed apples. While climatic conditions on  
the Pacific coast and in the inland valleys  
of British Columbia may facilitate the pro-  
duction of well colored fruit, Ontario fruit  
growers have other advantages that are so  
marked they should have no difficulty in  
supplying the great bulk of the demand in  
their province for boxed apples. The fact  
that western apples have been gaining  
ground so rapidly in Ontario indicates that  
Ontario growers have not been as enter-  
prising in holding their ground as western  
growers have been in taking it from them.

Land values are much lower in Ontario  
than in the west. This is a factor of great  
importance in the production of fruit at rea-  
sonable prices. Labor, although scarce, is  
cheaper in Ontario. Freight and express  
rates afford impressive advantages to east-  
ern growers. While a few years ago the art  
of packing was better understood in the west  
than in the east there are now numerous  
good packers in Ontario, while information  
on the subject is so readily available as to  
leave little or no excuse to growers who fail  
to take advantage of it. Those associations  
and individuals in Ontario who are so for-  
tunate as to have good crops of apples at  
their disposal this fall should see that as  
large a proportion of them as possible are  
packed and marketed in boxes.



## The Late "Dan" Johnson

The universal and widespread expressions of regret that have attended the announcement of the unexpectedly sudden death of "Dan" Johnson, the late Dominion Fruit Commissioner, reveal the respect and esteem in which he was held. Mr. Johnson had that rare faculty of making warm personal friends of those with whom he came in contact. Even offenders against the law who were prosecuted under the direction of the late Fruit Commissioner realized that he was only performing his duty and respected him for his integrity of purpose and fairness in his dealings with them.

The late Mr. Johnson was honest and sincere in all that he did. This gained for him the confidence of fruit growers and those interested in the handling of fruit from coast to coast. As a successful grower, not only of apples, but of more tender fruits as well, he understood the practical aspect of the questions that were brought before him in his office as Dominion Fruit Commissioner. Cautious in his undertakings, he was known as a careful and thorough administrator, and his views carried weight on that account. The recent important amendments in the Inspection and Sales Act, adopted at the last session of Parliament, will stand as a monument to the closing results of his work as fruit commissioner. In his death the fruit industry has suffered a distinct loss, and many fruit growers feel that they have lost a friend whose acquaintance was highly prized and valued.

## Canadian Association

The Annual Convention of the Canadian Horticultural Association was held in Ottawa, August 13 to 16, inclusive. This association is composed mainly of professional gardeners and florists and has been in existence for some 21 years. A somewhat remarkable record of the association is that of its 19 past presidents all are living.

Interesting addresses were given on such subjects as "Easter Lillies," by W. C. Hall, Montreal, Que.; "Plants for Easter to Replace Imported Stock," by Charles Craig, Ottawa; "The Extension of Credits," by E. B. Hamilton, London; "Co-operation and Florists' Clubs," by Geo. E. Geraghty, Toronto; "Care of Plants in Stores," by Joseph Bennett, Lachine; "Décoration Day," by H. G. Dillemeuth, Toronto, and "Plants for Christmas to Replace Imported Stock," by James McKenna, Montreal. The report of the Treasurer, Mr. H. J. Eddy, of Montreal, showed expenditures of \$134.00, receipts of \$292.00, and a balance in the bank of \$157.00. The social feature of the convention included a visit to the Experimental Farm, an inspection of the Ottawa driveway and visits to the greenhouses of local florists. The following officers were elected:

President, Geo. Douglas, Toronto.

1st Vice-President, E. B. Hamilton, London.

2nd. Vice-President, Jas. McKee, Ottawa.

Sec.-Treas., H. J. Eddy, Montreal.

Executive committee for three years, W. E. Groves, Hamilton; A. Walker, St. Annes, Que., and Chas. Craig, Ottawa.

For two years: Luke Williams, Ottawa; C. J. Hay, Brockville; Wm. Cotter, Montreal.

For one year: C. A. Smith, Lachine; S. Jordan, Peterborough; Wm. Hunt, Guelph.

## SOCIETY NOTES

### Guelph

The Guelph Horticultural Society held an exhibition of flowers and vegetables in the City Hall on August 29th and 30th. A feature of much interest was the Juvenile section where "The Sons and Daughters of the Soil" displayed the products of their gardens and showed that they knew how to grow flowers and vegetables just about as well as their elders. The judging in this section was done by Mr. T. D. Dockray, president of The Ontario Horticultural Association. Mr. J. W. Lyon made a fine exhibit of Sweet peas, showing flowers of thirty-four different color effects. A neatly arranged special exhibit by the Agricultural College, containing practically every variety of fruit and vegetable grown at the College, was an attractive exhibit. No cash prizes were given, but ribbons of merit were placed on the flowers and vegetables which were considered worthy of them. On the closing night the flowers were sold by auction and the proceeds turned over to the Red Cross Society.

### St. Catharines

The annual fall exhibition of the St. Catharines Horticultural Society this year will be held on Sept. 12th and 13th. It will be the Society's 15th annual fall exhibition. As usual it will be held in the armories. A new feature this year will be the first exhibition of their products by the boys and girls who are members of the Home Garden Brigade, an organization started by the Society among the school children in the spring. The method of this campaign was described at that time in The Canadian Horticulturist. A special competition will be held among the city schools for the best display of vegetables grown from seed distributed by the Brigade and staged on a space not more than thirty-six feet square and judged for quality, cleanliness, neatness and effectiveness of display. There will also be a gladioli competition open only to children.

### Canada's War Gardens

Survey of Canada's war gardens this year has led Mr. Frederick Abraham, Honorary Chairman of the War Garden and Vacant Lot Section of the Canada Food Board, to estimate that these gardens have produced anywhere from \$40,000,000 to \$90,000,000 worth of fruit and vegetables. An estimate of \$50,000,000 as the value of their production he believes to be a conservative one. The Canada Food Board is urging amateur gardeners who hesitate to sell the products of their gardens not to hesitate to do so. These are war times and the shortage of food has created a condition when scruples on such points should not be allowed to prevail.

### A National Flower

The desirability of planting the graves of our dead in Flanders with Canadian flowers has led to a discussion among horticulturists and others, which is steadily widening. A special committee, under the chairmanship of Prof. Thomson of the Botanical Department of the University of Toronto, has suggested that in connection with such a project the following points are of prime importance: (1) The plant should breathe with the distinction of Canada; (2) It should be confined to a definite species, the best of its kind the world over; (3) it should not be used by any other country or state; (4) it should have no horticultural rivals; (5) it should admit of easy propagation under various conditions of soil and climate and yet not become a noxious weed.

### A Garden Guide

One of the finest amateur gardener's handbooks which has reached us is the Garden Guide, edited by J. Harrison Dick, who up to the time of his death a short time ago, was the editor of The Florist's Exchange. The Garden Guide gives short concise directions on how to plant and maintain the home garden, suburban garden and city lot. It tells how to grow good vegetables and fruit, how to care for roses and other favorite flowers, hardy plants, trees, shrubs and lawns, porch plants and window boxes. It gives some splendid lists of annual, biennial, perennial and bulbous plant stock. It is splendidly illustrated throughout and is a book for which the average amateur gardener would find many uses throughout the season.

The Garden Guide costs 50c post paid. We will, however, give a copy free with each new yearly subscription to the fruit or floral editions of The Canadian Horticulturist. If you have a friend who is interested in gardening, send us his name and address with 50c. We will send them The Canadian Horticulturist for one year and forward a copy of the Garden Guide to you. If your own subscription is expiring or has already expired within the last three months, send us 75c (your renewal subscription plus 25c) and so secure a copy of this wonderful little book. Address, Circulation Department, The Canadian Horticulturist, Peterborough, Ont.

### The Toronto War Gardens Show

Through the instrumentality of the Toronto Horticultural Society and the Organization of Resources Committee, a vegetable show is to be held at the armories, Toronto, Sept. 11, 12, 13, 14. The city will be divided into five districts. Every amateur is eligible to compete in the district in which he lives or in which his garden is situated. There will be about \$200 in prizes for each district, and a grand championship prize for each vegetable class, to be chosen from the first prizes in each district. It is free to all and everyone is invited to exhibit.

Any one who has land available for next season is requested to get in touch with George Baldwin, 738 Dovercourt road, and as funds are required to do the fall plowing, persons desirous of assisting can forward donations to the honorary treasurer, D. A. Dunlap, 85 Bay street.

The Dominion Fruit Division is distributing an old bulletin entitled, Modern Methods of Packing Apples. It is well illustrated and contains much useful, practical information on this subject.



# A Fine Fruit Exhibit at the Canadian National Exhibition

THE display in the Horticultural Building at the Canadian National Exhibition was unusually attractive and well arranged. It filled the building nicely, thus being an improvement on some years recently when bare tables were in evidence. The displays by professional florists were large and attractive and made a most pleasing appearance in the main building. The exhibits of cut flowers by amateurs were also good, while the seed and nursery firms had well staged exhibits.

## The Fruit Exhibit.

While the number of exhibitors in the fruit section was not as large as was the case a few years ago, the total exhibit was, if anything, larger than last year, while the quality of exhibits on the whole left little to be desired. At one time there used to be a number of amateur exhibitors in the fruit classes. Year by year their number has been decreasing while the larger exhibitors have been, if anything, extending their exhibits. This year the number of exhibitors was less than a dozen. The quality of exhibits on the whole was fully better than that of last year, although there were some exhibits that were below par. The chief defects this year were a lack of size and color in apples. This was due to lack of moisture in the soil and to the season in some districts being somewhat late. The chief exhibitors, however, had as good fruit as in a normal year. They know the character of fruit required to win and do not exhibit unless they can obtain it.

The commercial packages were judged by Mr. P. J. Carey, of the Dominion Fruit Division, who has acted in this capacity for some 14 years, with one exception. Associated with Mr. Carey was Mr. W. G. Smith, a wholesale dealer of Toronto. After completing their work, the judges recommended that in future classes should be provided for wrapped and unwrapped fruit and that a class should be created for McIntosh Reds. At present many good varieties of apples are not specified in the prize list and are shown in the class for any other variety. This year the McIntosh Red had to be shown in this class.

## Improved Packing.

Mr. Carey reported that he found the packing better than ever before, especially in regard to the proper placing of the fruit in the boxes. There were excellent exhibits of King, Spy, Baldwin, Golden Russet and Rhode Island Greenings. McIntosh apples were scarcely up to the mark as they seemed to be a little misshapen and not sufficiently colored. The principal exhibitors were Roderick Cameron and Furminger Bros., of St. Catharines, and J. B. Fairbairn, of Beamsville, who had excellent exhibits of both apples and of tender fruits. These men furnished the bulk of the exhibits. Gordon Brecken, of Bronte, showed some excellent Rhode Island Greenings and other varieties.

The awards for the most attractive displays of fruit went first to Roderick Cameron, second to Frank Furminger and third to W. J. Furminger. Mr. Cameron's exhibit was well displayed and contained much the most fruit of any of the exhibits. It comprised apples, pears, peaches, plums, grapes, quinces, gooseberries, cherries and currants. Mr. Frank Furminger's exhibit did not contain the quantity of fruit nor the variety of

Mr. Cameron's exhibit, but in some respects was even more tastefully arranged. Mr. W. J. Furminger showed nothing but plate fruits.

The commercial exhibit of plums and pears was exceptionally fine. Peaches were riper this year than last and of better color. Grapes also were an improvement over last year's exhibit. Mr. F. J. A. Shepard, of St. Catharines, who judged the grape exhibit, found it larger and better than a year ago, the entries in grapes probably being double those of 1917. Leading varieties such as Moore's Early, Moore's Diamond, Concord, Campbell's Early, Niagara, Warden, Delaware and Lindley, were all good. The exhibit of Yellow St. John peaches was particularly fine. Roderick Cameron's collec-

## A Word From the Acting Editor

During the past year and a half The Canadian Horticulturist has had two editors, both of whom are now in his Majesty's service. One is serving with his battery overseas and the other is undergoing training in the Royal Air Service. These enlistments have somewhat disorganized our editorial work and has necessitated the work being done temporarily at least by other members of the staff. It is responsible, also, for the fact that during the past few months The Canadian Horticulturist has been a little later than usual in reaching its readers. We hope ere long that the magazine will once more be issued regularly the first of each month.

For some time our supply of photographs of fruit, flower and vegetable subjects has been becoming depleted. Whether or not war conditions have led our readers to pay less attention to the taking of photographs we cannot say. Readers who have good photographs of a horticultural nature are invited to send them to us for publication. Many of our readers who have achieved success with war gardens this year have surely something to show illustrating the results of their work. If so let us have them in order that others who are interested in the same subjects may profit by your example.

tion of 10 varieties deserves special mention. It included the St. John, Foster, Early Crawford, Fitzgerald, Champion, Elberta, Triumph, Jacques Rare Ripe, Engles and Mammoth varieties.

## Pears and Plums.

Entries of pears and plums were judged by Messrs. E. G. Palmer, of the Horticultural Experiment Station, Vineland, and Leslie Smith, of the Department of Agriculture, Toronto. The number of entries was fewer than in past years, but the fruit was of high quality and very clean. In pears all varieties shown were good, particularly Clapps Favorite, Bartlett, Anjou and Duchess. In plums what was lacking in quantity was

made up in quality. As a whole this exhibit surpassed the exhibit of pears in general excellence, all varieties being very fine. In crab apples, some particularly fine plates of Whitney were shown.

"Generally," said Mr. Palmer, "the number of entries of inferior fruit was less than in former years, showing that exhibitors are improving in their selection of specimens as a result of experience gained at previous exhibitions. The fruit shown was remarkably clean. Very few specimens of apples and pears showed scab, while codling moth was conspicuous by its absence. Last year several entries of plums showed the San Jose Scale. This year no evidence of this disease was found."

## Changes suggested in the Inspection and Sales Act

IN reply to a request from The Canadian Horticulturist for his views in reference to the recent amendments, made in the Inspection and Sale Act, Mr. W. F. W. Fisher, of Burlington, Ont., who was one of the delegates who attended the conference held in Ottawa to discuss the proposed amendments before they were made, has advised us that he considers them in the aggregate to be an improvement on the former act as they have removed some anomalies and made clear certain portions of the act which before were open to doubt.

Clause D., of section 319, describing immature fruit, states that it means "fruit not ripe enough for dessert purposes and which will not attain such condition after being picked from the tree, bush, plant or vine." Mr. Fisher believes that this description does not meet the need as it does not cover the demand for certain varieties of fruit which are never picked in condition suitable for dessert purposes, such as gooseberries and many varieties of plums, which canners require to be picked before they lose their acidity.

Mr. Fisher also believes that fruit from foreign countries which demand that Canadian fruit entering their borders shall be packed in packages of certain capacity, should be met with a compulsory clause demanding that they comply absolutely with the capacity of packages enforced on our own producers. Anything short of this he feels is manifestly unfair to Canadian growers.

Clause 329, section 9, provides that "no person shall sell, offer, expose or have in his possession for sale, any fruit in any packages that has been repacked, unless such packages are well and properly filled." Mr. Fisher states that in the judgment of many people this clause cannot be enforced and would not stand under review by a higher court.

One of the best amendments in the act in Mr. Fisher's opinion is found in section 331, which provides that "every person who carelessly handles, wilfully destroys, or pilfers any fruit, packed in any of the packages prescribed in the act, shall be guilty of an offense and liable to a penalty not exceeding \$25." After a few prosecutions have been successfully concluded Mr. Fisher believes this section should afford considerable protection to many long suffering fruit growers. It should provide also for more speedy redress than formerly from the express companies, whose employees had become notorious for shortages in the delivery of shipments.



# The Inspection and Sales Act

P. J. Carey, Chief Fruit Inspector, Toronto, Ont.

**A**LL the amendments to the Inspection and Sales Act enacted at the last session of Parliament came into force at once, with the exception of those relating to the sizes of fruit packages. In the case of these regulations the time for their enforcement has been extended until 1919, in order that the manufacturers of packages and growers may have an opportunity to dispose of their old stock.

The two amendments having the most noticeable effect on the marketing of fruit are those relating to the placing of the growers' names on all packages of fruit, and the requirement that "all packages shall be well and properly filled."

It has long been argued, and I think successfully, that if the growers would place their name in full on every package of fruit offered by them for sale, it would be evidence that they were ready to stand behind their pack. This would give evidence on their part of a desire to build up a reputation for growing good fruit.

It is not my intention to criticize present marketing methods, although some are admittedly faulty, but too many of our growers have been losing their identity when it came to the matter of marketing their fruit, and under the old conditions it was hard to trace the faulty pack.

The enforcement of this amendment is already producing good results, as there has been a marked improvement in the packing of fruit this season. This applies also to

the proper filling of packages, as there has been a great improvement shown also in this particular. Individuals may differ in their conclusions on almost all matters, but there is one thing upon which all are agreed—namely, that every purchaser likes to receive a full package. This is true even of the fellow who does not fill his own baskets when he offers them for sale. In a word, proper care and honesty practised by the original packer will count 90 per cent in successful fruit marketing.

## Faulty Packing.

In dealing with faulty packing, it should in fairness to our thousands of good growers be shown that the great bulk are making an honest effort to meet the requirements of the Act, and many are aiming at even higher ideals than the law calls for.

The percentage of faulty packers can now be called small, and it is gradually growing less.

Another amendment that meets a condition that in previous years has caused an almost endless number of complaints is that relating to the careful handling of fruit in packages. It is now a punishable offence to handle packages roughly while in transit, and pilfering is also made an offence by law.

The new amendments governing fruit packages, when they come into force, will have the effect of giving us a uniform apple box, a uniform apple barrel for the continent, as well as uniform fruit baskets, the

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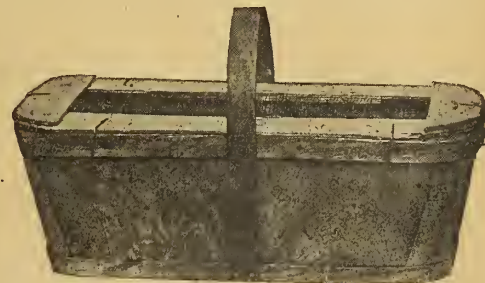
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number of which will be reduced to a minimum. As it was expected that they would be when they were endorsed by the fruit growers and adopted by the Government, it is evident that the changes in the Inspection and Sales Act are going to prove far-reaching and beneficial in their effects.

## Canadian Queens

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## British Columbia

Chas. L. Shaw, Victoria, B.C.

THE 1918 apple crop will be below the average, although prices will probably be somewhat advanced. Jobbers believe that the crop shortage, the high price of boxes, freight and labor will force quotations away up, but advance sales hardly justify this opinion, and it is pointed out that jobbers are too much inclined to make their calculations on the figures of two or three years ago, when the apple market was so unprofitable to the farmers that many grew discouraged and abandoned their orchards. In the northwestern states the crop will not exceed 75% of last year's. The apple situation will benefit by the improved transportation facilities this year.

The brine tank car is obviously unsuitable for fruit storage. Vancouver Island strawberry men tried it out this summer, as told in last month's Horticulturist, and declared it to be a failure. Now some Washington apricot growers have met with the same result. Apparently the system of cooling has too much moisture present for berry and soft fruit carrying.

B. C. fruit growers commend the attitude taken by H. B. Thomson, Chairman of the Canada Food Board. Mr. Thomson recently stated that because fruit is not a necessity of life and because it would be unfair to the grower to take such action, fruit prices are not to be fixed.

R. C. Treherne, Dominion Entomologist Field Officer, has issued a warning to prepare resistance to an expected invasion of British Columbia by the lesser migratory locust. The pest has already visited Wenatchee, Washington, and is headed north.

Australia, which in past years has provided a profitable market for British Columbia's orchard produce, will be closed this year, according to a cable received from D. H. Ross, Canadian Trade Commissioner at Melbourne.

As indicated in The Canadian Horticulturist last month, the apricot crop of B. C. this year, particularly in the Summerland district, will be far and away ahead of any previous one. Last year the union sent away six carloads. To date, this season, it has shipped thirteen cars, including the output of the Naramata house, and three carloads remain yet to be dispatched. The Stewart Fruit Company is also making heavy shipments and is looking forward to production equal to last year's.

Just on what grounds they base their calculations is uncertain, but farmers out here are expecting high prices for potatoes this fall and winter, many of them having visions of \$60 and \$65 a ton. The same opinion was held earlier in the year in the Pacific Coast states, but the rainfall which has followed since then tended to change the situation. It is now anticipated that the evaporating plant of the Dominion Products Company at New Westminster will soon be re-opened after several weeks' suspension of operations.

The first full car of Okanagan fruit reached the Pacific Coast cities during the second week in August. It contained plums, peaches, pears, apricots and tomatoes. Everything was reported to be in excellent condition.

The Okanagan Valley has sent the last of its record cherry crop rolling away towards prairie and coast. The figures obtainable show that the total cherry shipments from Summerland alone are fully

double those of last year. Both the Stewart Fruit Company and the Fruit Union report their 1918 output as twice as heavy as last year's. A notable feature of the cherry business this year was the volume of fruit put through the pre-cooling plant operated by the Summerland Fruit Union and shipped in car-lots. Eleven cars, some of them heavily loaded, started from the pre-cooler for points as far east as Toronto. The equivalent of five carloads of these were shipped direct from the union, the several locals affiliated with the Okanagan United Growers being responsible for a portion of the car-lot shipments.

All along the banks of the North Arm of the Fraser River in South Vancouver, the sidehill and bottom land gardens are yielding big root and fruit crops this year. The

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Oriental vegetable gardens that have been supplying the city of Vancouver for years, and which have been highly cultivated this year, have responded to the care given them, with the result that, despite a month of drought, the potatoes and other crops are running at a high average per acre. Carrots were given special irrigation during the dry spell and are now in prime condition.

G. E. McIntosh, in charge of fruit transportation for the Fruit Branch at Ottawa, has been a recent visitor to Victoria and

Vancouver. He proceeded into the up-country sections to consult with the growers on various questions concerning them and his department. He stated that the government will exercise every effort to give British Columbia fruit growers good service in the way of transportation, and the reduced wheat crop and consequent lighter demand for cars should make this object easier of attainment than during the past two years.

"B. C. growers would be well advised to grow late stuff rather than early for the prairie market, in many cases, and never early varieties of inferior size and appearance," wrote J. A. Grant, British Columbia Prairie Markets Commissioner, in a recent bulletin. "B. C. shippers who receive a big price for their first early fruit on coast markets," he goes on, "are often disappointed in their returns for the same goods sold on the prairies. The conditions are altogether different in the two points. The prairie draws its supplies from many early points in the United States and early varieties are generally small and poor in quality by comparison with later sorts. Our early varieties come into competition with later and better varieties from places where the seasons are earlier. Some parts of Oregon and Washington will have reached the peak of the season when ours is just beginning. They ship largely to Calgary, and our supply of early inferior varieties is entirely discounted by them. Late stuff always finds a good market, at a good price, when all competitive stuff is off the market, and B. C. has the field to herself with the best quality of goods."

The Summerland Review is just now engaged in an editorial campaign for the es-

(Continued on page 229.)

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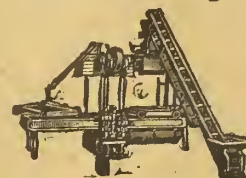
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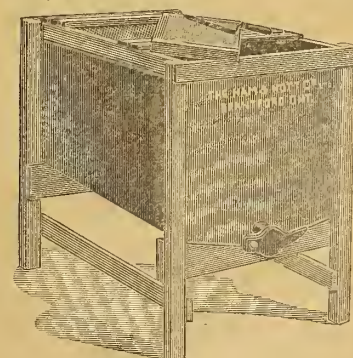
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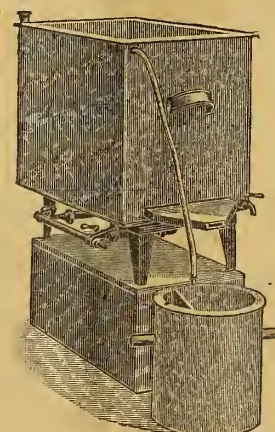
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## SKINNER SYSTEM OF IRRIGATION

Control complete. Prevents drought losses. Reduces labor bills. Increases profit. Special Portable Line for \$15.75. Send for new Bulletin.

The Skinner Irrigation Co.  
217 Water Street Troy, Ohio.

When Writing Advertisers, Mention  
The Canadian Horticulturist

# POULTRY YARD

## September Reminders

The nights are becoming cooler and the days shorter, all of which means that winter is coming.

Now is a good time to buy new blood. By placing an order at this time a better selection can be had.

Get rid of all the surplus old hens. This will be a saving in both feed and house room. The growing stock need that.

Now that the molting season is on, it is advisable to add a little sulphate of iron to the drinking water. This will act as a tonic and strengthener.

Young turkeys that have reached the first of this month in good health are practically safe. They make rapid growth and development in September.

The March-hatched pullets are beginning to show indications of winter work. Some are laying, while others are reddening up and learning to sing.

Plow up the empty duck runs and sow rye in them. This will disinfect them and also grow valuable green stuff.

Remove all the male birds from the flocks, keeping them separate until about the first of the year.

Make sure that you provide a proper variety of rations for the poultry this winter.

Save every head of late cabbage for green feed. They are excellent for the layers in winter.

Clip every sunflower head off and save it for the poultry. The seeds make a fine feed for the fowl, being laxative in their effect.

All surplus carrots, turnips, and similar vegetables should be carefully stored and used as the vegetable part of the rations for the poultry this winter.

Clean the poultry buildings early—and keep them clean.

Lice should be dealt one last fatal blow as they stick closer and are even more determined in winter than in summer.

Building paper on the inside of the open poultry house, and cheap roofing on the outside will promote egg production next winter.

Clean up all rubbish piles about the house. Such places become the headquarters for rats and other enemies of poultry.

During molt give the same feeds as for egg-production, but richer in nitrogen, which can be obtained in meat scraps, oil meal, green cut bone, sunflower seeds, etc.

Small potatoes wasted by most people at digging time can be boiled and made to serve the flock well during the winter months, working them into the mash of bran and corn chop.

A shed open to the south for sunlight is indispensable to winter egg production, as it affords a place where the layers can secure the essential exercise on stormy days by scratching around in the litter for their grain.

Molting is not a disease, but a condition that proves fatal to weak fowls. The great drain upon the system while casting off the old and growing the new coat of feathers, calls for strong vitality.

Feather pulling is apt to be acquired during the molting season, especially when the pens are crowded. The young stubs of feathers are plucked, mischievously at first, and finally intentionally. After the salty substance in the quill of the feather appeals to the culprit, it is a hard matter to check the vice, and the rest of the flock is readily taught the same thing.

The dusting bath being a very important item for the layers during the winter months, one should store a barrel or two of thoroughly dry field or road dust and ashes, having a large box in one corner of the scratching-shed for the fowls to dust themselves in and get rid of the lice. A handful of sulphur in each boxful will prove an additional help in their fight against these pests.

Charcoal is essential for poultry in winter, but if secured commercially it is very high in price. The poultry man may as well make his own charcoal. Besides the pit method, a much simpler method is to pile old scraps of boards, posts, chunks of wood, etc., into a heap and set them on fire. When they become a mass of live glowing coals, check the burning by sprinkling water over the fire, or better still, smother it out with damp straw or hay or wet cobs. This will furnish an abundance of charcoal of superior quality and the cost is practically nothing.

# SEEDS

Wholesale

IMPROVED FARM ROOT SEEDS

IMPROVED VEGETABLE SEEDS

IMPROVED FLOWER SEEDS

Seedsmen please enquire for our SPECIAL PRICES

**KELWAY & SON, Langport, England**  
Wholesale Seed Growers

Cable Address: KELWAY, LANGPORT

## DOUGLAS GARDENS

### Catalogue for 1918

Contains a complete list of a number of new plants that will interest customers this season.

A fine assortment of Paconies. Perennial plants of all kinds. Shrubs and roses.

### BEDDING PLANTS

Standard Fuchsias from 2 to 3 feet. Carnations of the finest varieties. Heliotrope, Cowslips, Salvia, Salpiglossis, Snapdragons, Pentstemon, Lobelias, Pansies, Ageratum, Verbenas, Asters and Stocks.

**ERICK ERICKSON**  
OAKVILLE - ONTARIO



## British Columbia

(Concluded from page 227.)

establishment of a fruit cannery in Summerland next year. The paper points to the fact that four canneries are being put in readiness at Kelowna to take care of that district, that a smaller plant is being installed at Benvoulin, and that there is a good prospect of Okanagan Centre getting a cannery too. The cannery and jam plant that formerly operated in Summerland is now idle. "It is admitted that nowhere are

there grown better tomatoes than are produced here, and nowhere else in this country beyond a limited area right around can apricots be obtained for jam making. With the greatly increased production of the last few years we now have these things in sufficient bulk to keep cannery and jam plant busy. Now, Summerland is losing out while other towns are taking our raw products and converting them into commodities of trade with greatly increased values."

An 80 per cent apple crop is reported in the Gordon Head and Saanich districts. Be-

tween 5,000 and 6,000 boxes constituted the pick and three-quarters of this amount was sent east of the Rockies. Dry weather has been the big set-back to the apple crop this year. The skins hardened and the fruit reached, in many cases, only premature growth.

The Oregon Agricultural College, of Corvallis, Oregon, has a bulletin of special interest to pear growers, entitled, "Pear Harvesting and Storage Investigations in Rogue River Valley." The results of Seed Potato Certification in Oregon are given in Bulletin 295.



## IMPERIAL SERVICE

If you are in doubt about the proper lubricant, *ask the Imperial Oil man.* He will give you courteous attention and sound advice on your lubrication problems. That is part of Imperial Service.

## NOT ONLY GOOD OILS — CORRECT LUBRICATION

**Y**OUR automobile, tractor or stationary engine can do its best work only when it is correctly lubricated. Your horses can do their work more easily when your wagons and farm machinery are correctly lubricated. All your machinery will wear longer, give you more satisfactory service and less repair expense if you use the correct lubricant in each case.

There is a just-right oil for every mechanical purpose—an oil manufactured by Imperial Oil Limited for each lubricating requirement. You can get it in any part of Canada—at any Imperial Oil station. There is one near you.

Imperial oils are supplied in steel barrels and half-barrels—convenient, economical. No waste. You use every drop you pay for and know that every drop is uniform and clean.

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For Gasoline Engines,  
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**POLARINE OIL**  
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For Kerosene Engines,  
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**SENE TRACTOR**  
**OIL**  
(Recommended by Inter-  
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For Open Bearings of  
Farm Machinery  
**PRAIRIE**  
**HARVESTER OIL**

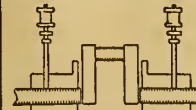
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**ELDORADO**  
**CASTOR OIL**  
—a thick oil for worn  
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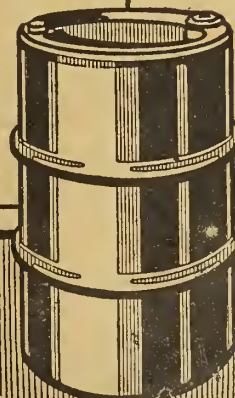
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**CYLINDER OIL**

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**IMPERIAL OIL**  
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We Build  
**GREENHOUSES**  
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For over half  
a Century  
It Has Been  
Our Business  
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**Lord & Burnham Co.**

Limited, of Canada

TORONTO MONTREAL  
Royal Bank Bldg. Transportation Bldg.

## Niagara District Notes

F. G. H. Pattison, Winona, Ont.

**D**URING August and part of July we had some very warm and dry weather in the fruit belt. Four times at Winona the thermometer soared to 100 degrees in the shade and over. In consequence the raspberry crop was considerably shortened and blackberry crop, already much affected by the winter, was prematurely dried up. Early tomatoes were much injured and dry rot has been more prevalent than for years past. It has seriously affected the early crop and, unless we get rain soon, will shorten the canning crop materially as well. Early potatoes promised well and were just starting to mature when the hot spell struck them. This had the effect of preventing them from obtaining their proper size, and the tubers are unusually small. In addition the excessive heat and drought caused the leaves to curl and wilt, and, in some cases, to prematurely die. This had the appearance of ordinary blight, but was quite distinct from it in many respects, and attacked plants which had been well sprayed with Bordeaux.

Early peaches are in full swing now. They are only a moderate crop, but are bringing good prices from 75c per 6-quart basket to \$1.25 to \$1.50 per 11-quart. Sour cherries

turned out a pretty fair crop, particularly the Montmorencies. Towards the close of the cherry crop prices rose, and as high as \$2.00 to \$2.50 per 11-quart basket was paid.

Black currants were not much more than half a crop. Prices ran from \$3.00 to \$3.50 per 11-quart basket. Pickers were paid 40c to 75c per basket, the general price being 50c and over. Early plums are a short crop, except Burbanks, which are pretty good. Early pears are also scarce, but Bartlett's are a good half crop, and Keiffers are about two-thirds of a crop. Other varieties are quite light. Outside of this district both plums and pears are very scarce, so it is likely that prices will be well maintained. At present (August 19th) 75c for 6 quarts and \$1.25 to \$1.50 for 11 quarts, are the ruling prices.

A good deal of activity exists in the canned fruit market. New jams, fruits, and canned vegetables are beginning to come on the market and prices are high. The prices for canned fruits are expected to be high on all lines. Opening prices on new crop jams as a whole have been withdrawn and new quotations available in some quarters point to further sharp advances in both strawberry and raspberry jams. Government requirements are quite likely to absorb a large percentage of the season's pack. High prices have been paid by the jam factories for fresh fruits. As for example, \$6 to \$6.25 per crate for raspberries, \$2.50 to \$3.25 for black currants, \$4.80 to \$5.25 for strawberries, and with the high price of labor and other materials added, it is impossible for canned fruit to be anything else than dear. Strawberries have proved a poor pack owing to shortage of stocks. The pea pack is good and will probably reach 100 per cent. Tomatoes should reach an average pack, but will hardly do so if the hot, dry weather keeps on. Raspberries are only fair. The corn pack will be quite light.

During the first week of August a deputation of grape growers from the Niagara District, waited upon the Provincial Prime Minister. The deputation was headed by Dr. Musgrove, M.P.P. for Niagara Falls, Dr. Jessop, M.P.P. for St. Catharines, and J. T. H. Regan, M.P.P. for South Wentworth. The object of the deputation was to obtain a clear understanding of the Provincial Government's attitude as to the sale of native wines manufactured before December 31st. After that date under Dominion regulation the manufacture of native wines will be illegal, yet no restriction is placed upon selling, that being left to the Provincial Government. The deputation asked for assurance from the Government that nothing would be done to prevent the sale of wines manufactured before December 31st. Sir William Hearst said that this was the first time the matter had been brought to his attention. He promised to consider it fully and give his decision at a later date.

It is generally considered that grapes are not likely to be more than 50 per cent of an average crop in the Niagara fruit belt. Red grapes are less than that. Prices are expected to be well maintained as there is going to be a large demand for grape jam for overseas, as well as for home use.

Early apples, chiefly Astrachans and Duchess, are coming pretty freely on the market now. Prices run from 50c to 75c per 11-quart basket. Early and fall apples

## Apple and Other Fruit Packers' Attention

We are manufacturers of first class Slack Barrel Hoops and Staves and would be pleased to have your inquiries for such, for delivery in small or large quantities. This stock would be shipped from Stratford, Ont. Direct all correspondence to

**MERRITT & CO.**

CHATHAM

ONTARIO

## Schools and Colleges

### ONTARIO LADIES' COLLEGE

WHITBY - ONTARIO.

Public School to Second  
Year University,  
Household Science,  
Music: Instrumental,  
Vocal,  
Commercial,  
Elocution, Art.

School Re-opens Sept 11, 1918

Civic and Parliamentary  
Studies, Gymnasium  
Work and Swimming.

For Calendar apply to  
Rev. F. L. Farewell, B.A.  
Principal.



OSHAWA

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Visitor: The Lord Bishop of Toronto.

### A Residential School for Girls

Young Children also received.

Preparation for the University. Art Department, including drawing, painting, wood carving and art needlework. Toronto Conservatory Degree of A.T.C.M. may be taken at the School. Fine, healthful situation. Tennis, basketball, skating, snowshoeing, and other outdoor games.

For terms and particulars apply to the Sister-in-Charge, or to the Sisters, of St. John the Divine, Major Street, Toronto. College reopens September 12.

Geo. Carl Mares, of London, England, in his elaborate book, "History of the Typewriter" says in the preface: "Since this work was undertaken the structure of the typewriter has undergone a complete revolution. Probably nothing in any mechanical art has been more marked than the progress of the front stroke visible writing machine. In this respect the Underwood Typewriter deserves all the honors which naturally fall to the successful leader of a revolution." United Typewriter Co., Limited, 135 Victoria St., Toronto.

(Advertisement)



are a fair crop in this district, but winter apples are quite light, not more than 30 to 40 per cent of an average. Greenings appear to be the best. Around Winona and Grimsby a large proportion of the growers are sending their fruit to Hamilton market this season. There is a keen demand there for both fruit and vegetables, and the cash prices are well maintained.

Fruit Inspector Biggar, of Hamilton, was in the district recently. The Inspector stated that the Niagara District is the only one in the Province having a plum crop. He thinks the tomato crop will give a good yield owing to the recent showers, and hopes that the dry rot may be checked, the prevalence of which was fast ruining tomato prospects.

The Ontario Highways Department have at last taken over the Queenston and Grimsby road as a Government highway.

General regret is expressed by the fruit growers of this district at the death of Dominion Fruit Commissioner Johnson. He was greatly respected and admired by them, and was a tower of strength to the fruit industry. He always found time to attend every year the chief fruit meetings in this district, and his presence and the information dispensed by him on these occasions was greatly appreciated by the growers. He filled the office of Commissioner exceedingly well, and the fruit growers feel that they have lost a warm and powerful friend at court, and one whose place it will be difficult to fill.

The tussock moth has been very troublesome in the cities and towns in and adjacent to the Niagara District this year. Some have adopted adequate measures for treatment, but others, alas! have let it go by default to the great injury of fruit and shade trees.

The Red Cross fruit kitchen at Hamilton, which was burned down last fall, has again started up in full operation, and has already received 500 gallons and 100 baskets of blueberries. During the past season they handled all the Red Cross fruit between St. Catharines and Hamilton. That the fruit put up at this kitchen has been greatly appreciated at the front there is abundant evidence to show. The latest is from Dr. Robert J. Renkison, Army Chaplain, as follows: "I want to let you know that in several hospitals in England and France as soon as the nurses heard that I came from Hamilton, the first thing they said was that the fruit which was sent from the Red Cross fruit kitchen there was one of the inspirations of the war. It has been of incalculable cheer to the men during their convalescence when the regular food of the best hospital does not always appeal." Mr. Machett, head of this department, stated that jam is a thing practically unknown at the present time in England, as all the Canadian product is sent to the hospitals.

Thursday, Aug. 15th marked the commencement of the summer "every day market" at Hamilton, an institution the fruit growers have been advocating for some time past. Selling continues each day till 9 p.m. and on Saturday till 10 p.m. This will be a great help to both fruit growers and market gardeners.

I consider The Canadian Horticulturist is amongst the leading journals of its kind on the continent, and a paper that has done estimable service for Canadian horticulturists. —F. Abraham, Hon. Chairman, Vacant Lot and Home Garden Section, Canada Food Board, Ottawa.

## Do Your Banking by R. F. D.



14

Make the mail your messenger; and save yourself the long rides to town.

Deposits may be made—butter and cheese cheques cashed—money withdrawn—just as easily and safely by mail as in person.

Write the manager to tell you all about this convenient plan of **Banking By Mail**—or call in and have it explained, the next time you are town.

## THE MERCHANTS BANK

Head Office: Montreal. **OF CANADA** Established 1864.

with its 102 Branches in Ontario, 32 Branches in Quebec, 19 Branches in Manitoba, 21 Branches in Saskatchewan, 53 Branches in Alberta, and 8 Branches in British Columbia serves Rural Canada most effectively.

WRITE OR CALL AT NEAREST BRANCH.



For Fall Planting.

Write for our 28 page illustrated catalogue.

Bulbs  
Seeds  
Plants  
Poultry  
Supplies

**FREE**

## Bruce's Regal Flowering Bulbs

For Winter Flowering indoors and Spring Flowering outdoors. A House without flowers is not a Home.

Prices Postpaid

	Each	Dozen	100
Crocus in four colors.....	.03	.25	\$1.65
Freezias.....	.04	.30	2.15
Lillies, Calla White.....	.25	2.50	—
Lillies, Chinese Sacred.....	.30	3.00	—
Hyacinths, Roman, four colors.....	.10	1.10	8.50
Hyacinths, Dutch, four colors.....	.10	.95	6.50
Narcissus, Single, six varieties.....	.05	.50	3.50
Narcissus, Double, four varieties.....	.05	.50	3.50
Narcissus, Paper White.....	.07	.65	4.25
Scilla Siberica.....	.04	.35	2.65
Snowdrops, Single.....	.04	.30	2.10
Tulips, Single, Mixed.....	.05	.40	2.50
Tulips, Double, Mixed.....	.05	.45	3.00
Tulips, Parrot, mixed.....	.05	.45	3.00
Tulips, Darwin, mixed.....	.05	.45	3.00

**JOHN A. BRUCE & CO., Limited,** HAMILTON, ONT.  
ESTABLISHED 1850

## BISSELL Double Action Harrows will thoroughly cultivate



and pulverize any soil. One Harrow is Out Throw; the other is In Throw. They are simply constructed, rigid and durable. The Gangs are flexible and the Disk Plates are so designed that they "hang" right into the soil. Bissell Harrows are built in sizes and weights suitable for horse or tractor use. Write Dept. N for free catalogue. 98.

**T. E. BISSELL CO., LTD., Elora, Ont.**

These harrows will be on Exhibition at Toronto, London and Ottawa Fairs, and will also be demonstrated at the Fourth Tractor Farming Demonstration, Cobourg, September 17th-20th. See advertisement on page 232.

## APPLE BARRELS

We ship them all over Ontario.  
Machine-made, Standard size.  
Get our prices.

Contracts made with Fruit Associations.

**SARNIA BARREL WORKS,**  
Sarnia, Ontario.

**TREES & SHRUBS**  
**BROWN BROTHERS Co.**  
NURSERYMEN LIMITED  
**BROWNS NURSERIES, ONT.**



### The Fruit & Produce Market

The Commission firms undernoted wish consignments of fruit and general produce. They will be pleased to have you write them for information, shipping stamps, etc., if you have fruit or vegetables for sale.

### H. J. ASH

44-46 Church St. - Toronto, Ont.

CONSIGNMENTS OF FRUIT & VEGETABLES SOLICITED

Shipping stamps furnished on request.  
Canada Food Board License Nos. 3-043,  
3-044 and 3-517.

### DAWSON - ELLIOTT CO.

32 West Market St., Toronto, Ont.  
Wholesale Fruit and Produce. Consignments Solicited.

Canada Food Board License No. 3-045,  
Class II., Div. B., and 3-046, Class II.,  
Div. C.

### HERBERT PETERS

88 Front St. E., Toronto, Ont.

See advertisement on page vi.

Canada Food Board License Nos. 3-007,  
3-008 and 3-009.

### Protecting Dried Fruits

Dried fruits will escape insect pests while in storage if the fruits are heated in an oven and then stored in tightly-tied paper bags according to entomologists at the Ohio Experiment Station. A temperature of 130 degrees maintained for 30 minutes will kill all insect life present in the fruits after drying and the paper bags will keep other insects out of the fruit when stored away.

Dried fruits keep best in a cool, dry place, an attic being more adaptable than a living room where the heat varies or a cellar where dampness is present.

Beans being kept for seed may be freed from the attacks of the bean "weevil" by adding two tablespoons of hydrated or air-slaked lime to each quart of beans when stored away. The weevils enter the beans while in the pod, emerge after hulling and continue to multiply, feeding on the stored beans until their germs are destroyed.

### Annapolis Valley Notes

Eunice Buchanan.

THE apple season opened with Crimson Beauties which were gathered on August 10th, and marketed at five dollars a barrel for ones and twos. A few Duchess have also been shipped, principally

thinnings. Black spot is plentiful in unsprayed orchards.

Wild raspberries have yielded a good crop. Cultivated ones retailed from 15c to 18c per box. Owing to rust in plantations the acreage has been reduced. Growers paid not less than 1½c a box for picking strawberries. Blueberries have been light and sold for 10c to 12c or more a quart. In August Greystone turnips made \$1.50 a 100, but the price dropped lately. An additional market is opened for green produce at Aldershot Camp.

The first N.S. tomatoes on the Halifax market sold for 75c a basket of six quarts. Ontario tomatoes sold for \$1.25 for a 15-lb. basket. Green beans in baskets of 5 or 6 lbs. sold for 50c. Green beans in bulk sold for 7c a pound. Cabbages retailed at 6c to 10c lb. The grower gets about 5c lb.

Grain and potatoes look good. Corn has missed in many places owing to poor seed. The hay season has been prolonged and tedious owing to the weather.

The fall web worm has been a bigger plague than usual, thousands of nests occurring in individual orchards. They are being hand picked. The birches, alders, elms and raspberries are also attacked, and some weeds.

### Marketing the Peach Crop

J. E. Annis, Medina, N.Y.

I find that there is only one way to market a large peach crop; I have the best success selling to the local cold storage men. We have in Medina four large cold storages, the capacity of the four combined being 140,000 to 150,000 bushels of peaches or 140,000 barrels of apples. These are located within two miles of my packing house.

In the peach season of 1917 I sold my entire crop of peaches to three of these storage houses, selling different blocks of orchards to the different houses. They were all packed for the different dealers in bushel baskets.

We graded our peaches with a Gifford grader, making two grades, the grader being run by a gasoline engine. Its capacity is 60 bushels of peaches an hour. It was located in my packing house. The season of 1918, if the Lord gives me a peach crop, my plans are to place this grader and engine on a toad smash, the outfit to be drawn by a tractor or horses through my peach orchard, taking six or eight rows of peaches at a time, having the peaches graded; having room enough on the platform picked and delivered to the said outfit and to put on the covers after they are graded.

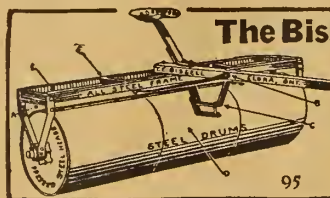
The peach wagon will deliver packages to this outfit and draw peaches to the truck after they are packed.

### Books and Bulletins

The University of Illinois Agricultural Experimental Station, at Urbana, Ill., has published Bulletin 206, entitled, Field Experiments in Spraying Apple Orchards in 1913 and 1914. These tests include further tests of the effectiveness and relative value of the standard sprays on the control of fungi and insects affecting the apple crop, of several makes and brands of arsenate of lead, and certain new and proprietary fungicides, the effects of varying quantities, pressures, and nozzle openings and other similar experiments. The same station is distributing Circular No. 226, entitled, Control of Cabbage Worm.

From the New York Agricultural Experimental Station, Geneva, N.Y., may be obtained Bulletin 442, entitled, Controlling a Radish Pest; and Bulletin 447, dealing with Newer Varieties of Strawberries.

The New Jersey Agricultural Experimental Station of New Brunswick, N.J., has ready



### The Bissell Steel Roller

has a rigid steel frame—no wood whatever. Large roller bearings and strong 2" axles insure durability and great strength. The Bissell is a 3-drum Roller of good weight, built to stand hard usage and give great service. Write Dept. N for free catalogue.

T. E. BISSELL CO., LTD., Elora, Ont.

These rollers will be on exhibition at Toronto, London and Ottawa Fairs.  
See advertisement on page 231.

### HORSE RADISH ROOTS WANTED

Must be clear of small Roots and green tops and in sound condition. Price six cents per pound, Toronto.

### THE WM. DAVIES CO., Limited

521 Front Street East - Toronto, Ontario

Canada Food Board Packer's License No. 13-50

### Peerless Poultry Fencing



A real fence, not netting. Strongly made and closely spaced, a complete barrier against animals of any kind. Keeps the small chicks confined. They can't get through. Does all and more than is required of a poultry fence.

The heavy, hard steel top and bottom wires with intermediate laterals will hold a carelessly backed wagon or unruly animal and immediately spring back into shape.

The wires are held together at each intersection by the Peerless Lock.

### Send for Catalogue

and address of nearest agent. We make a complete line of farm and ornamental fencing. We now have agents nearly everywhere, but will appoint others in all unassigned territory. Write for catalogue today.

THE BANWELL-HOXIE WIRE  
FENCE CO., Ltd.,  
WINNIPEG, MAN.  
HAMILTON, ONT.



for distribution several helpful circulars and bulletins. Circular 88 is entitled, Common Diseases of Berries; Circular 89, Common Diseases of Garden Vegetables and Truck Crops; Circular 95, Seed and Soil Treatment for the Control of Potato Seab, and Bulletin 324, the Strawberry Weevil.

Considerable valuable experimental work has been conducted by the Horticultural Section of the Michigan Agricultural College Experimental Station, at East Lansing, Michigan. Much of this is recorded in a series of special bulletins now being distributed. Bulletin 84 deals with Strawberry Culture, 85 with Potato Diseases, 86 contains A Spray and Practice Outline for Fruit Growers, Bulletin 87 gives the results of Dusting and Spraying Experiments with Apples, while Bulletin 89 touches on Tomato Growing in Michigan.

## Box Packing

**W**HEN packing fruit in boxes care is required to see that the boxes are well made. They should be constructed of good, clear spruce lumber, the ends  $\frac{3}{8}$  inch thick, sides  $\frac{3}{8}$  inch, top  $\frac{1}{4}$  inch, cleats  $\frac{3}{8}$  inch thick, and  $\frac{3}{8}$  inch wide. Good cleats will be a saving of both time and patience. Pine should never be used, as the wood taints the fruit.

In most cases the boxes are bought set up. Where they are to be shipped a long distance it will be a great saving in freight to buy them in the flat. It is not an expensive operation to nail them together, and they occupy much less space in the fruit house. Too many nails should not be used, and only as many as are absolutely necessary to put the box strongly together. If the sides, top and bottom are in two pieces, four nails in each end will be enough. If they are in one piece, three is all that is necessary. The tops and bottoms should be nailed with the cleats. Inch and three-quarter gummed box nails for the sides and two-inch nails for the tops and bottoms, will hold much better than ordinary nails. Before using, the cleats should be soaked for a couple of hours in water to avoid splitting.

There are several of these devices, the object of which is to press the ends of the lids down firmly in order that the nailing may be done easily and neatly.

A great many make-shifts can be used for tables. Good ones are advertised in The Canadian Horticulturist. They must be so arranged that the stand for the box is close to the fruit, so as to facilitate speed for the packing. The small portable tables made on the principle of the folding cot, with a position on each side for a box, are useful for the individual grower. In large packing houses long stationary tables built of heavier material are best. The surface of a table for two should be about three feet wide and not more than five feet long, as anything larger would not allow two packers to reach all points of it without unnecessary stretching. The table should be high enough to allow a packer to work with comfort, avoiding back-bending in all cases. Three feet is about right. The covering should be of strong canvas, allowed to hang rather loosely. The edges of the table should be padded to prevent bruising of the fruit. Care should be taken to have the table cleared of fruit six or eight times a day, otherwise the fruit will be considerably bruised by continual handling.

Reports reaching us from the Ontario Department of Agriculture include the report for 1916 and 1917 of the Horticultural Experiment Station at Vineland, and of the Ontario Vegetable Growers' Association for 1917.

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**Effect of High Prices for Early Fruit**

B. C. Abbot, B.C., Coast Markets Commissioner, Vancouver, B.C.

A CLOSE observation of the demand for farm products, more especially fruits for canning, brings home to one the great possibility there is for these fruits to be held too high in price at the beginning of the car-load movements. No doubt the conditions of the salaried man have a great deal to do with the demand for canning fruits in the city. From investigations made we find that it is possible for us to divide our city consumers into three classes, viz.: the wealthy, the day-wage worker, and the salaried worker. The first class will buy fruit for canning purposes every year, no matter at what price. His trade is, however, small when considered in bulk, and makes little difference on our total supply. The second class is drawing big pay, and, in general, is either a single man or one who, although married with a family, does not do much canning of fruit owing to the fact that he lives in an apartment house, or is likely to be on the move on a moment's notice. Consequently we have to leave the greater part of his consumption to the table use of fresh fruits. The third, or more or less stationary class, who work on a monthly or yearly salary, formerly put up enough fruit for their season's requirements. This demand to a very great extent has been eliminated, due to the fact that this class is on the whole suffering undue agony from financial embarrassment. Foodstuffs and all kinds of household essentials have continued to soar in price to such an extent that the purchasing power of an ordinary man's salary has been reduced that he can now support only a family of three on the same amount he used to support a family of seven.

Many producers have spoken to the writer about the high wages paid in the cities, and stating that they should receive double for their produce. We wish to point out that the high wages are paid to the day laborer, and not to the men and women who are working as clerks and accountants, or, in other words, the salaried class. As to the double price for his produce, we believe the producer is entitled to all of that, as his farm essentials have gone up in price from 35 to 250 per cent.

I have mentioned the foregoing in order to point out to the producer that, while he is justly entitled to a profitable price, the class of consumers who buy the bulk stuff are cut off from him through actual shortage of salary. How, then, is the producer going to save himself on perishables? The

solution is, place your perishables on the market at a reasonable profit to yourself and move your entire crop without waste. This will put more net returns in your pocket than holding your first cars so high that no ordinary consumer can buy it, thus creating a heavy loss in waste, and finally selling the balance of your crop at "any old price." Fair profits and no waste is what these times demand, so do your bit by pushing along the good work of rural organization, so we may get proper distribution of our foodstuffs on the markets, and thus benefit the producer, tradesman and consumer.

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References: The Canadian Bank of Commerce (Market Branch) and Commercial Agencies.



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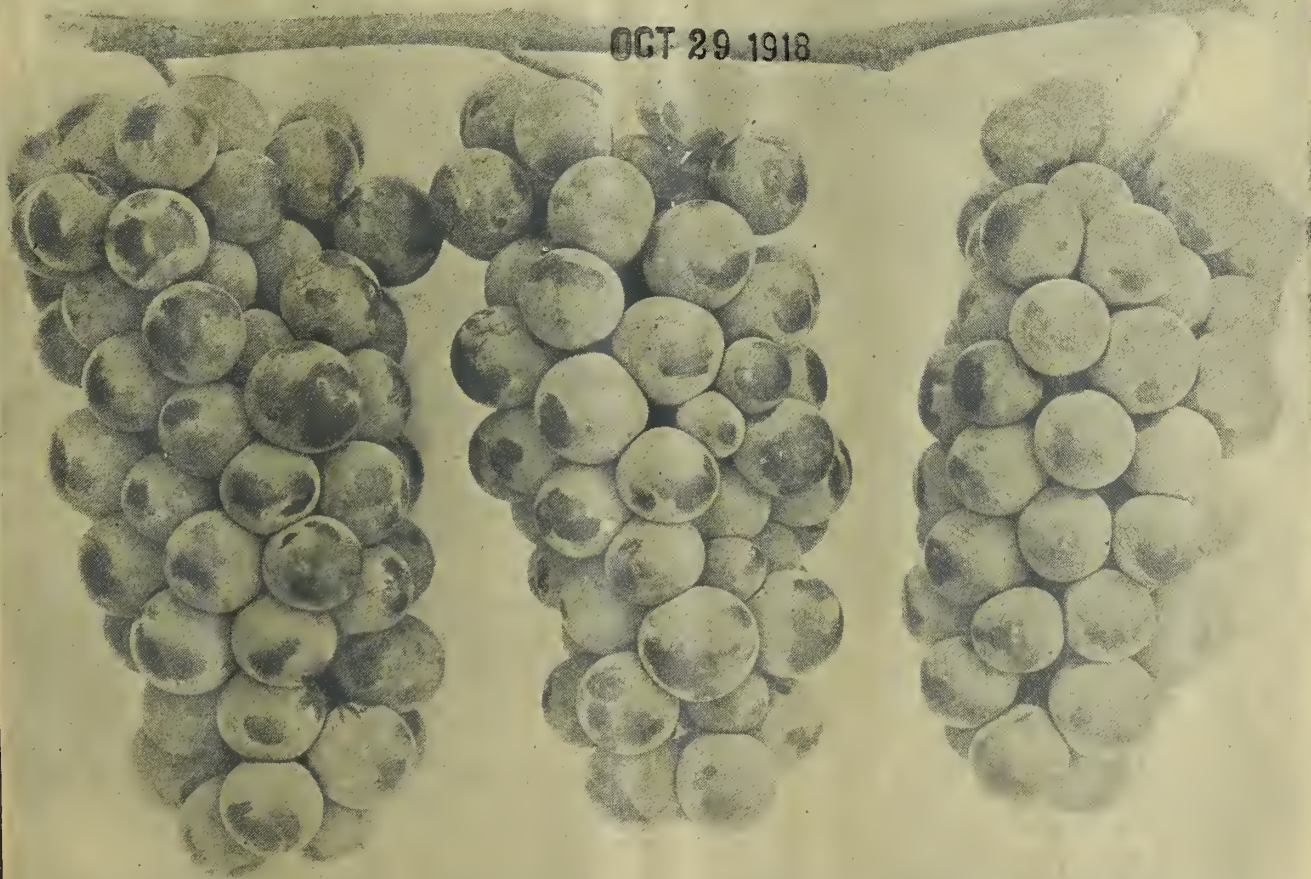
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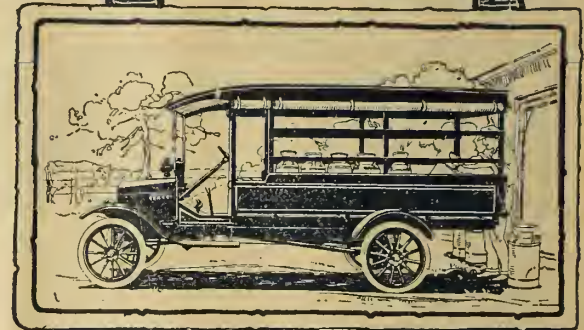
PRICES of farm products have reached a high level. The farmer can take *full* advantage of this situation only by adding to his equipment of time and labor-saving machinery. Time and labor are money. When time and labor are saved, money is saved.

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# The Canadian Horticulturist

Fruit Edition

Vol. XLI

TORONTO, OCTOBER, 1918

No. 10

## Spray Guns a Boon to Fruit Growers

Prof. L. Caesar, Provincial Entomologist, O.A.C., Guelph, Ont.

THIS last season has demonstrated as well as any one could hope the efficiency of thorough spraying if that spraying was done at the times and with the mixtures recommended in the spray calendars. Every orchard visited that was thus treated had beautifully clean fruit, several of the orchards having less than one per cent. of scab and codling moth injuries combined. A great factor this year in securing thoroughness in the spraying of apple orchards, especially orchards composed of medium to large sized trees, was the spray guns. Several makes of these were used throughout Ontario, and most of them gave excellent satisfaction. The fact is that since the introduction of gasoline-driven power outfits there has been probably no greater boon to fruit growers in the line of spraying—and what would fruit growing, at least apple growing, amount to without spraying?—than the invention of the spray gun.

Many fruit growers, probably the majority, are already familiar with one or more makes of gun but for the sake of those who have not used them or seen them used, a few words of description may be useful.

The guns are made of brass or some closely allied copper alloy, are about twenty inches long, and about one inch in diameter. At the exit end is a nozzle with a flat plate, like the plates of an ordinary disc nozzle, in it. This is removable and consequently plates with small or large openings can be used to suit the pressure the pump can give. At the other end of the gun is a handle which can be turned to shut off all the mixture or to let it on and to regulate it as desired. When the handle is turned to open the gun to its full capacity the spray is sent out in a long, narrow stream, which carries right through or over almost any apple trees, but breaks into a fine mist about eighteen inches wide a few feet from the nozzle. By turning the handle in the opposite direction the spray comes out in a very wide, fine mist. Inter-

mediate positions of the handle will give variations between the fine, wide mist and the long, narrow stream. It is this power of adjustment and the great driving power of the device that are so valuable. The gun is, however, very much cleaner and more convenient to use than the old spray rods. This can readily be understood when one



How would you like to have a field of celery like this one, grown by P. Delsole, at St. Hubert, Quebec.

remembers that with it you have only a little cylinder of twenty inches long, weighing in all about three pounds to handle instead of a pole eight to ten feet long. Moreover, there is no necessity for getting drenched with the gun, because except for San Jose or Oyster-shell Scale it is not necessary as a rule to go in beneath the trees to spray, all the work being done while standing out just beyond the range of the branches.

In the matter of speed and economy of material, it has been proven that one man with one gun and one line of hose can spray quite as much and often more than two men with two rods and two lines of hose and that less mixture is required to do an equally good job.

Unfortunately, the guns can scarcely

be used with any but power outfits capable of giving about 200 lbs. pressure with ordinary rods and nozzles. If a machine cannot supply 200 lbs. pressure when a large or medium sized plate is in the nozzle of the gun it will often do so by substituting a plate with a smaller opening.

Many growers will be inclined to use a short hose with the gun, but this would be a mistake. The hose should be at least thirty feet long and of excellent quality. A long hose allows the spray machine to be driven beyond the tree out of the way of the operator and of the spray itself.

Although the spray gun greatly simplifies spraying and makes it much easier to do a good job, a word of caution against carelessness or over-confidence is necessary. No outfit will ever be made for spraying or dusting that will be fool proof so far as giving results goes. When using the gun study how to do a good job, how to cover from every side every bursting fruit bud or every tiny or large fruit. If it requires this constant care on the part of those who try to teach the subject, it will require just as much care from fruit growers or their helpers who have not devoted so much thought to it though they may have done more spraying. There is a great tendency on the part of everyone to grow careless; hence a man who has never sprayed a tree in his life before will often after half-an-hour's teaching beat the man who has sprayed for years.

During some winters mice are very destructive to fruit trees, even after the latter have been planted several years. Just before winter sets in, wrap ordinary white building paper around the trunks, tying it with twine; mound up the soil a little about the base to prevent the mice entering at the bottom of the paper, and there should be no trouble from them. If this has not been done before the snow has fallen, tramp the snow well around the trees, after putting on the paper, which will prevent the mice from reaching the trunks

—W. T. Macoun.



# Fertilizing the Potato Crop\*

R. D. Bligh

THE chief factor governing yield in potato production is soil fertility. It is not by any means the only factor. Besides available plant food, moisture, temperature, vigor of seed and numerous other conditions, have a bearing on the success or failure of the crop. Nevertheless available plant food will, to a large extent, govern both the quantity and quality of the harvest. It is, therefore, fundamental that fertility be maintained where it is deficient.

To-day with the immense amount of nitrate of soda being used in munition manufacture, and the increased price asked by the Chilean Government, also the lack of transportation facilities for both acid phosphate and nitrate, together with the impossibility of potash importation, the fertilizer situation has rather a gloomy appearance. To-day farmyard manure is the most effective general fertilizer that we can use. Its average composition is 10 lbs. nitrogen, 5 lbs. phosphoric acid, and 10 lbs. of potash. Based on its food contents alone, its value is at least \$4.00 a ton, and this is further augmented by humus forming material.

A profitable use of commercial fertilizers depends on their intelligent use, and this in turn depends on soil conditions and crop requirements. Fertilizers may be and are used profitably in many instances. On the other hand their indiscriminate use is almost sure to result in general loss.

The following are some definite conclusions that have been obtained by experimentation:—First, manure cannot be substituted by the use of commercial fertilizers, nor can the fertility of the soil be maintained by their use alone. Generally the best results are obtained from their combined use, in which case the application of fertilizer acts as a starter to carry the young plant along until the manure has undergone decomposition and its fertilizing constituents are rendered available by the action of soil organisms or bacteria. Care should be taken in selecting this fertilizer which is to serve as a starter, to see that it contains readily available plant food, that is, to have its nitrogen in the form of a nitrate and its phosphoric acid in the form of acid phosphate, otherwise the fertilizer itself may have to undergo chemical changes in the soil before its food is available for plant life.

Second, fertilizers (termed complete) that contain the three essential elements, nitrogen, phosphoric acid and potash, have given the largest profits.

\* Extract from an address delivered before the last annual convention of the Nova Scotia Fruit Growers' Association.

To-day such a fertilizer is practically an impossibility to secure because Germany holds the chief potash supply of the world. Therefore, we must make use of our farmyard manure and our clover roots to supply the potash. Furthermore, by the more general use of ground limestone, those inert forms of potash that are held captive in our soil will be liberated and become available for our crops.

Third, all crops require certain amounts of the three elements, nitrogen, phosphoric acid and potash, but if one of these is present in a very limited amount, the crop can only develop as long as this supply of the smallest quantity lasts. If for instance there is an excess of available phosphoric acid and an excess of potash, but only a small amount of nitrogen, not enough for the needs of the crop, the crop will be determined by the amount of nitrogen.

This accounts for results obtained from complete fertilizers.

Fourth, the use of fertilizers should be considered from the standpoint of profit and not of yield. Watch your profit. The largest applications do not always give the largest profits. The increase in yield between the use of 500 lbs. and 1,100 lbs. of commercial fertilizer may not be sufficient to justify the increase in cost. For example, an interesting experiment was carried on for three years by Dr. Zavitz at the Ontario Agricultural College to determine the most profitable amount of fertilizer to use for potatoes. The following table shows the results obtained:—

Fertilizers and manures	Yield per acre in bushels.			In. over check plot.
	Fertilizers per acre.	Average of 78 tests 3-yr. exp. 912-13-14.	Weight.	
1. Nothing	0	131.8		
2. Fertilizer	320	154.0		22.2 bus.
3. Fertilizer	640	166.0		34.2 bus.
4. Fertilizer	960	178.9		47.1 bus.
5. Fertilizer	320			
6. Cow Manure..	10 tons	179.9		48.
6. Cow Manure..	20 tons	181.8		50.

From this experiment the yield per acre increased as the amount of fertilizer became greater. From studying the results we see that the first 320 lbs. of fertilizer increased the yield 22.2 bushels, the second 320 lbs. 12 bushels, and the third, 320 lbs. 12.9 bushels, while the 20 tons of manure increased the yield exactly 50 bushels over no fertilizer and only 1.9 bushels over the plot receiving 10 tons of manure and 320 lbs. of fertilizer. Thus we see that as we increase our fertilizers our yields do not increase proportionately, for if they did, instead of getting increases

of 34.2 bushels and 47.1 from the applications of 640 and 960 lbs. of fertilizer, we would get 44.4 bushels and 66.6 bushels, respectively. Furthermore, these experiments show the wisdom of combining our stable manure with light dressings of fertilizers for increased production. Remember that your profits or losses from the use of commercial fertilizer will be governed by the following conditions in your soils, viz.:—Drainage, Organic Matter and Lime. If these are present your profits are assured.

## Late Crops of Strawberries

C. L. Shaw, Victoria, B.C.

Strawberry plants bearing two crops a year are now being grown on the southern part of Vancouver Island, although so far in only small numbers. W. W. and J. W. Suttie, two brothers, living just outside Victoria, recently went into the growing of "everbearers" in earnest, and by staying with their task, both on and off season, they have reached their goal. Just at the close of August the Suttie Brothers began to harvest their late crop and they expect to gather berries until the coming of frost.

Overhead irrigation is in use on the Suttie farm, the Skinner system being used. This consists of a water pipe down the centre of the garden, with laterals running off on both sides every fifty feet and about eight or ten feet from the ground. In these laterals nozzles are inserted every three feet, and these effectively cover the ground. Under normal conditions irrigation is applied every ten days.

The plants are in no way associated with the Alpine variety, well known in England as late bearers. They were developed from Bismarcks, originally by Samuel Cooper, of New York State, in 1889, and have already gained popular favor in many parts of the United States. Vancouver Island, however, has been tardy in trying them out, but the success of the Sutties is likely to act as a spur to other growers to do some experimenting with the double-crop variety.

I would cover each late fall-set strawberry plant with common earth from the side of the rows, about two inches deep, as soon as it begins to freeze hard in November. What is true of strawberries, is also true with raspberries, blackberries, and all small fruit plants. If set in the fall and a mound of earth placed over or around each plant, the results are very satisfactory, and we get done what otherwise might be undone if left until spring. But plants must be well ripened and mature or else taken up from the field and set out the same day.—L. J. Farmer, Pulaski, N.Y.



# Fruit Packages and Packing

SOME of our apples are graded and packed in the orchards and shipped direct to market. The majority are roughly graded, packed in barrels and sent to the storehouse where they are re-packed. The chief package is the barrel, which, for some years to come, will be the standard for our ordinary grades of such varieties as Greening, Baldwin, Russet, Stark and Ben Davis. The box package, so much admired, is the standard for western growers and where eastern growers come into competition with them it is likely that we will have to adopt this style of package for our fancy fruit. Undoubtedly apples present a much more beautiful appearance when properly packed in boxes, and it is certain that they hold up longer and show fewer bruises. Fancy grades should all be boxed, especially the early and tender kinds, such as Fameuse and McIntosh, and the better grades of Spy, King, and other similar varieties.

## Barrel Packing.

The greatest objection the consumer has to much of the barreled fruit is dishonest packing. The packer often does not realize that fruit should be packed according to grade, i.e., No. 1 fruit should be strictly No. 1, and No. 2, should not contain No. 3's.

In packing a barrel of apples the top must be carefully faced with apples representative of the contents of the barrel. The tail also should be properly levelled and arranged. This practice is very often questioned, but the more attention given to the packing of

our fruit, the more will our reputation be enhanced. The apples should not be given more pressure than necessary to keep them from getting slack. A great many of the packers have a tendency to press their barrels too tight, with the result that the greater portion of the apples are bruised and the market value and keeping qualities are greatly impaired. The barrels should be frequently racked on a two-inch plank and the apples should be level with, or but slightly above the top of the barrel before pressing. This will do away with excessive pressing and the apples will come out in better condition.

## Packing Instructions.

The following instructions to packers are in use by one of the most successful shipping associations in Ontario:—

"Drive all quarter hoops down firmly and nail with three nails in each upper quarter hoop. Then drive hoops well down on the end of the barrel with poorest head and nail with four nails. Then head line by using four nails in each headliner. Exercise care in headlining and drive nails slanting. If nails show through to outside of barrel don't clinch but take out and drive right so it does not show through. Now, take out the other end of the barrel and clinch the quarter hoop nails. Use one and a half inch wire nails.

"Next, stencil your barrel.

"Now you are ready for packing.

"If using paper, place this in the end of barrel. With great care pick out and stem your facers, not the large-

est but average size of grade you are packing. See that every apple is a perfect one with the very best color you have to choose from. You should not have any difference in size in your facers, but if you should have, place your smaller apples to the outside row and the larger ones to the centre. A good many inexperienced packers do the opposite. Always place stems down, with the exception of long slopely varieties, as Gilliflower and Bellflower, which lay red cheeks down. The sorting must be done carefully, and reject all worms, scabs, bruises and unshapely apples both for No. 1's and No. 2's. Now, place your barrel on a plank and after each basket of apples is emptied, give the barrel several quick, short shakes. You will have to be governed according to the size of the apples you are packing how full to fill the barrel before using the leveller. At all times level so it will take one row blossom end up, on top and leave your apples about half an inch above staves. Care must be exercised in racking down very carefully. Nail and headline your barrel and same is ready for shipment."

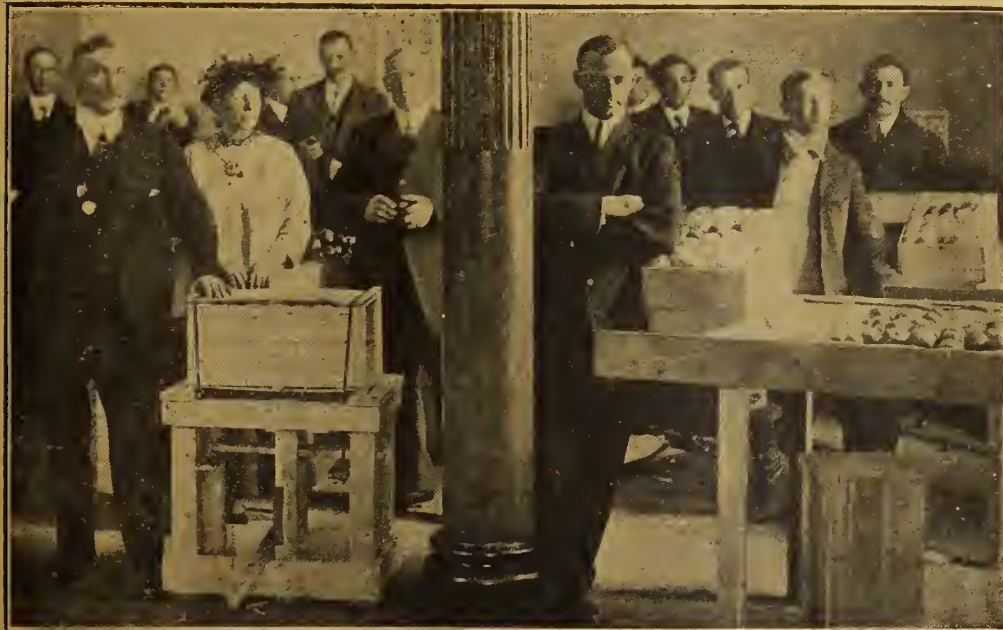
## Avoid Pressure.

When apples have to be shipped to the storehouse to be re-packed very little pressure should be given and the barrels need not be faced. In harvesting an apple crop for storage, very little attention is given to grading, this being completed in the storehouses. Some buyers recommend this practice and their reasons presumably are lack of labor and shortness of season, but it is quite obvious that if the apples are run over a table in the orchard and culled, the expense of rehandling these culls would be avoided and the margin of profit increased.

## Box Packing.

The packing of fruit in boxes by the Ontario growers is on the increase. Local markets in Ontario and Quebec are using more boxes than before. The western markets are asking for their fancy fruit in this package, and if our growers are to participate in these markets for high priced goods they must ship the greater percentage, if not all, of No. 1 fancy fruit in boxes. Box packed apples may meet with poor returns at first, but once introduced to the trade, they should, and will give better net prices to the grower. Any failure may be attributed largely to low quality and poor packing.

All summer and early fall apples should be sold in our markets in boxes. The fruit carries better and finds a readier market, especially in the west. In our local markets, and to some ex-



Of late years interest in commercial fruit growing has been increasing in New Brunswick, where fruit packing classes, such as the one here shown, have been held under the direction of Mr. A. G. Turney, Provincial Horticulturist. Mr. P. J. Carey, of the Dominion Fruit Division, may be seen to the left.



tent in our western markets, there is a good demand for our summer apples, such as Astrachan and Duchess, put in baskets. The fancy and No. 1 grade of apples will always bring better prices in boxes and baskets than in the barrel. The fruit being sold suffers far less from bruising in the smaller package.

### Packing and Grading.

To make a success of box packing much time and patience at the start is necessary. Some of our growers have not succeeded sufficiently to make it worth while changing from the barrel pack. This is to be regretted and it is safe to say, had they persevered, very good results would have been shown. The most important point in box packing is to aim for the same standard of quality that has obtained for the western growers their markets and high prices. We have the flavor in Ontario, so our next concern is to get well colored, clean fruit. The apple should be graded closely, according to size. This not only facilitates packing, but also improves the appearance of the box when opened. Box packing requires considerable practice and skill to reduce the cost to a minimum.

High grade fruit should be wrapped; use a light Manilla paper. Much of the paper at present in use is too thin, and where the apples sweat it presents afterwards a very untidy appearance. No time is lost by wrapping, for while the packer is reaching for the apple with one hand he picks up the paper with the other. Then, too, a wrapped apple remains in place and the shifting so troublesome in unwrapped apples is overcome. The boxes should be paper lined as it insures keeping dirt and odors away from the fruit and adds to the attractiveness of the package. Pads are sometimes used in the tops and bottoms of the boxes. The thick patent pads made with excelsior filling are clumsy and occupy too much space. Single and double corrugated cardboard or heavy soft cardboard or paper will answer the purpose, especially for export, and will prevent a good deal of bruising.

The two ways of packing most used are the diagonal and square methods. The diagonal is preferable for the reason that it causes less bruising. One apple fits in between two in the form of a triangle and allows more pressure to be applied diagonally across the box instead of having to jam them as in the square pack.

The bottom of the box when packing, is the top when opened in the case of unwrapped fruit, but if the fruit is wrapped the box is top side up and the last layer is the face. If there are to be four tiers in the box and a wrapped diagonal pack is used, start the apples two across; the second tier three; the

next, two; or three across, then four, etc. This is to ensure the fourth tier, or face, opening up with an apple in each corner. If the fruit is unwrapped start the face by placing an apple in each corner; the second tier then will start with two.

### October Pruning

Prof. J. W. Crow, O.A.C., Guelph, Ont.

Would it be injurious to apple trees to prune them in October? We are not very busy and could do some work in the orchard if it would be alright. Our pruning would not be more than 1 inch cuttings.—H. L.

I would not advise pruning young trees at this season, but trees five years old and up might be pruned in moderation without danger. It would be well not to go above the inch limit mentioned, but I should not care to remove any considerable number of branches of this size, although certain trees might seem to require it.

### Winter Orchard Protection

The heavy losses to fruit trees last winter have led many to wonder how orchards can best be protected against similar losses next winter. The fact that many trees this year have borne but light crops and thus have not depleted their strength will give some protection. Of course, there is no sure cure. Two precautions that can be taken are to see that the trees enter the winter as well matured as possible, and second, that the winter moisture supply in the ground is saved.

Cultivation after the leaves have fallen may prove beneficial in conserving the winter moisture supply. In extremely dry situations it may be worth while to apply a mulch of straw or coarse manure in the late fall. Such a mulch may attract mice and a cone of earth should be built up about the base of the trees to a height of ten or twelve inches. Then if the mulch does not come closer to the tree than the base of the cone there will not be great danger from mice.

With small plants it is quite possible to bend them over to the earth and cover with soil. This is a common practice in protecting raspberry bushes and very young trees. Just enough dirt to hold the plants near the ground will furnish ample protection.

A good supply of moisture in the soil during the winter season will also tend to protect trees from drying out. Where the falls and winters are dry it is a good practice to irrigate trees after the leaves have fallen if water is available. It is not good practice to let weeds or grasses grow up about trees in late summer in localities where the fall and winter are likely to be dry.

### An Outdoor Root House\*

Prof. J. W. Lloyd, Urbana, Ill.

An outdoor cellar for storing vegetables may be constructed of brick, hollow tile, or concrete. Taking advantage of the topography of the land, an excavation is made in the side of a hill, if possible, at such a point that a grade entrance will be secured to the cellar. Forms are then erected, if the construction is to be of concrete, and the side walls made. The roof may be either in the form of an arch that is self-supporting, or it may be made flat if reinforced concrete construction is employed. Provision must be made for carrying the ventilator shafts of concrete to a height that will put their outlets above the layer of earth that is to be placed over the roof. It is preferable to have the walls provided with air spaces to furnish insulation. For this purpose concrete blocks in place of solid concrete walls may be employed. Another way of improving the insulation of the storage cellar is to fill in a layer of cinders between the concrete wall and the bank of earth forming the side of the excavation, and also to carry the layer of cinders over the roof. In all cases there should be a layer of water proof concrete over the roof.

Earth should be banked against the exposed sides and over the top of the building to a depth of at least three feet. This will assist very materially in maintaining a uniform temperature within the storage cellar, and will be good protection against frost. The entrance should consist of a vestibule with double doors. Retaining walls should be provided so that earth may be banked against the vestibule as well as the rest of the building. The vestibule should be sufficiently large so that upon entering, a person may close the outer door before opening the inner door, and thus avoid cold air draughts.

The ventilators and air intakes should be provided with dampers so that they may be closed or opened as desired, to maintain the proper temperature in the cellar. The air intake should be screened at the outer end to prevent the entrance of rats or other vermin.

By proper attention to such a cellar it is possible to maintain a temperature of 34 to 38 degrees without much fluctuation, during most of the winter season. This temperature is almost ideal for the storage of potatoes, the root crops, and cabbage. Such a storage cellar is rather expensive, but is a permanent structure and is especially adapted to the storage of vegetables, and also apples, in northern localities.

\*Extract from circular No. 231, entitled, Storage of Vegetables for Winter Use, issued by Agricultural Experiment Station, Urbana, Ill.



## Growing Tomatoes in Alberta

THE production of tomatoes in large quantities on the prairie does not appear to have been a success in the past, but prairie people are inclined to attempt things which have never been done before. Messrs. G. O. Kerr and J. E. Terrill, of Lethbridge, Alberta, have observed for some years that tomatoes in small quantities were matured in the Lethbridge district and decided that there was no reason why the experiment should not be made on a commercial scale. As a result about two acres of tomatoes were set out this summer on land farmed by Mr. Kerr, a few miles east of Lethbridge. The plants were started under glass in Lethbridge and set out on June 6, 7 and 8, at which time they were from six to eight inches in height. Three thousand five hundred plants were set in the plot, some of them three feet apart and some four feet apart. The experience of the season seems to indicate that the four-foot distance is preferable.

The soil secured was an old pasture which had since been in alfalfa and was protected by a wind break of trees on the western side. It was a rich loam with a gentle south slope, and, of course, was irrigated. The land was cultivated in the ordinary way and irrigated before planted and three times afterwards.

### First Returns.

The first of the ripe fruit was avail-

able seven weeks after setting out the plants, or about the end of July. During the month of August from five to six hundred pounds of beautiful ripe fruit was taken off the plot each day, and this rate of production continued into September. The total yield of the plot is estimated at 35,000 lbs. and a ready market was found for the product in the city of Lethbridge, the early ripe tomatoes bringing twenty-five cents a pound and the latter crop fifteen cents a pound. The gross price of 35,000 pounds at the latter figure was \$5,250.

According to Mr. Kerr no difficulties were experienced in the production of this crop. The vines were trimmed early in July for the purpose of producing heavier fruit and also admitting more sunshine which ripened it rapidly. The tomatoes were as large and as well developed as the best imported stock from British Columbia or Washington, and, being local grown, they of course, reached the consumer in better condition. The crop was so heavy that in many cases the support stakes which had been put in for the vines to climb on were broken down. One vine was noted which had eighty-three tomatoes on it.

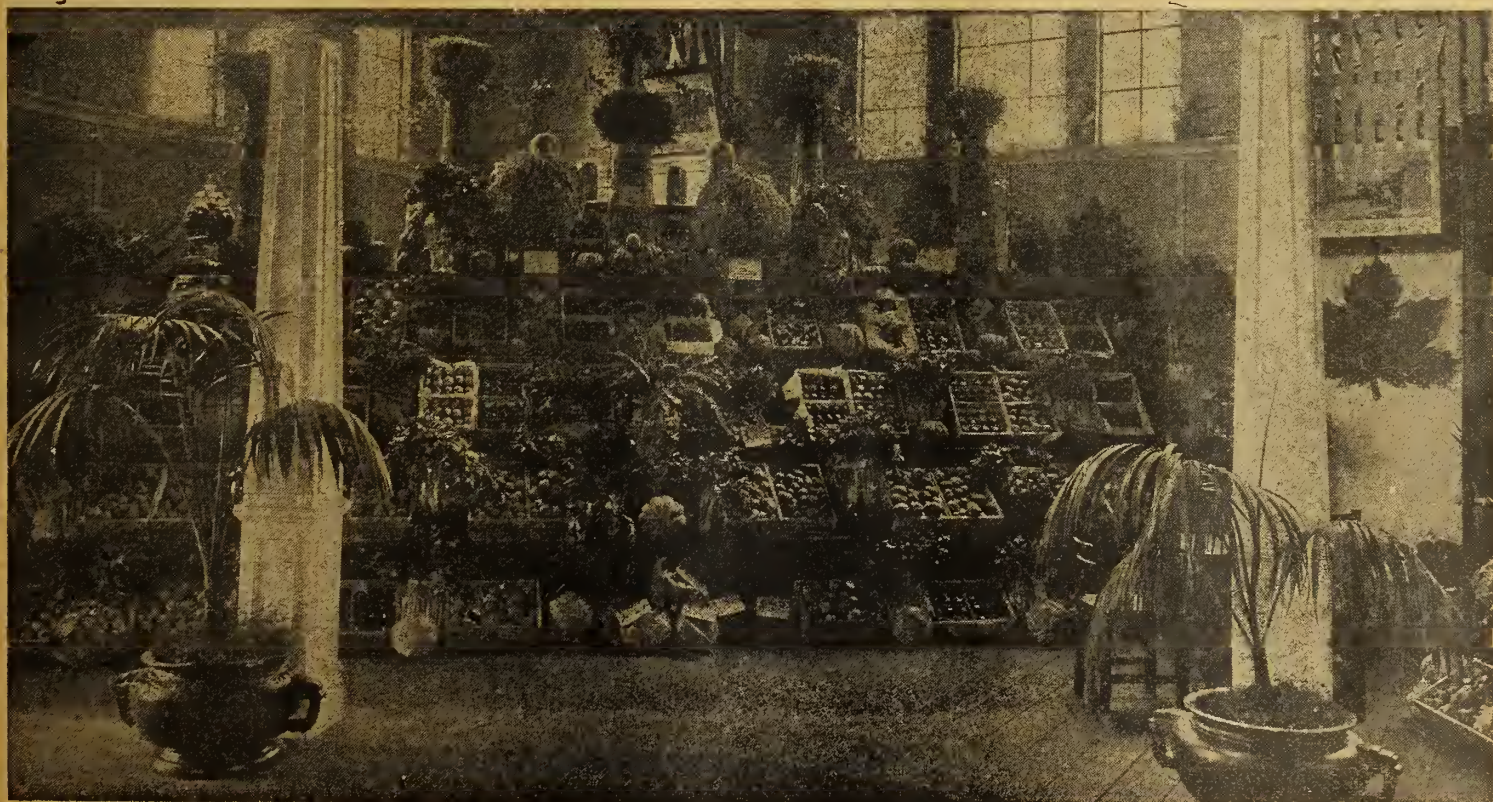
Up to September 7th no damage had been experienced from frost, although as a precautionary measure flax straw had been dumped about the plot so

that smudges could be started if necessary. Mr. Kerr points out that the essential thing in the production of this crop was the irrigation, which not only increased the amount of fruit but by affording ample moisture at the right time resulted in early ripening. Without irrigation it is doubtful if the experiment would have been successful. As it is the experience is instructive as to what these irrigated lands are capable of. As there is an abundance of such land there is little doubt that some day this portion of the prairies in southern Alberta will be the home of one of the most productive agricultural communities on the continent.

### Practice Fall Spraying

Fall spraying after the leaves of fruit trees have dropped may be substituted for the usual dormant spraying, and orchardists will thus overcome the difficulties in handling freight and obtaining labor in the spring. San Jose scale unless extremely bad can be controlled practically as well by fall operations as by deferring the work till spring, according to entomologists of the Ohio Agricultural Experiment Station.

Heavy spray tanks are much more easily hauled over firm ground in the fall than over soft ground in the spring. Men and teams are more available for doing the work in fall than when the rush of spring work is on. Also the application of such a



The display of vegetables from the gardens of the prize winners in the Ontario Field Crop Competitions was an outstanding feature in the Horticultural Building at the Central Canada Exhibition, Ottawa. It was arranged by Mr. J. Lockie Wilson, Sec'y of the Ontario Vegetable Growers' Association.





Various varieties of peaches as photographed in the peach orchard of Dr. A. J. Grant, at Thedford, Ont., past president of the Ontario Fruit Growers' Association.

spray as lime-sulphur solution or a miscible oil to orchard trees confers considerable immunity from attacks by meadow mice and rabbits during the winter.

Insecticides and any required machinery should be ordered now for this November spray. No delay will then be occasioned when spraying time comes.

### Keeping Celery Fresh

E. P. Smart, Brockville, Ont.

Celery properly banked up in the first part of October should be ready for use in three or four weeks. If it is to be stored in a cellar for winter use, nothing further need be done to give the upward direction to the stalks after drawing up the earth about the plants. If the climate allows of its remaining in the open ground, as is the case in some parts of the country, a heavy bank of earth may be made on each side of the rows. As the weather grows colder, additional covering of litter will be necessary. Celery will stand considerable frost, but the ground must be as dry as possible and made secure from water in the trenches. This winter-trenching should not be attempted unless one is sure that his locality is not too severe and is able to give sufficient covering. If conditions are favorable, ideal celery is the result of this system. In parts of our country where the climate is more severe, celery must be stored under cover or in a cellar,—a temperature of about thirty-four degrees Fahrenheit is most suitable. The celery

plants are placed preferably in narrow boxes, of a depth almost equal to the height of the celery. At the bottom of the box there should be a few inches of moist sand or earth. The roots of the celery plants should be placed on this in an upright position, the plants being quite close together to exclude light. No earth or sand should be placed between the plants. The soil should not be watered from above—the dampness must be maintained below the roots. Thus placed, the celery will be blanched and ready for use in January, February and even later on. If boxes are not available the space on the cellar floor may be divided into strips by placing boards of suitable height and the proper distance apart. The plants would then be packed as in the boxes. If planted in wider boxes in masses, there is always danger of the plants "heating" and decaying.

The varieties of Celery are not numerous. The Golden self-blanching and the White Plume are the most popular. The Red or Pink celeries are in favor in the English markets and the claim is made for them that they are crisper and better flavored than the white varieties, as well as less liable to rust and rot in winter. The Pink variety has not attained any degree of popularity in this country, but is worth a trial on a large scale by some enterprising celery grower who could thus educate the public as to its value.

We must put up our fruit in boxes if we are to hold the western market.—C. J. Thornton, M.P.

### The Use of Pits

The pit for storing vegetables should be located in a well-drained place. Ordinarily, a shallow excavation, usually not over a foot deep, is made in the ground. This pit is lined with straw; then the vegetables to be stored are placed in a conical pile on the straw. Straw to a depth of about six inches is then placed on the sides and top of the pile. This is covered with about three inches of earth. The straw is allowed to extend up through the earth at the top of the pile to provide for ventilation. As cold weather approaches, more covering is added to the pit. Another layer of straw and an additional layer of earth are applied. In very severe climates an outer layer of manure is also put on to afford protection against frost.

If parsnips alone are to be stored, they may be placed in a conical pile and merely covered with soil, since they are improved rather than injured by freezing. The advantage of placing them in a pit rather than leaving them in the garden where they grew is that they are more accessible during the winter season.

The conical pit described is applicable to the storage of beets, carrots, parsnips, turnips, and potatoes. Better results will usually be secured if the piles are made rather small. It is easier, then, to take out supplies during the winter without unduly exposing a large portion of the product. Sometimes, it is the practice to use several pits for the storing of the home supply and to place a small quantity of each kind of vegetable in each pit, so that when supplies are desired, the entire contents of one pit may be removed at once and kept temporarily in the basement of the house until used.

Cabbage is not usually stored in conical pits. The plants are pulled with the roots and leaves left on, and are placed upside down in narrow rows, about three heads wide, on the surface of the ground, then banked up with earth. It is not necessary that the cabbage be buried very deeply, since it is not injured by freezing provided it is allowed to thaw out slowly while still buried in the soil.

The outdoor pit method of storing vegetables is better adapted to severe than to mild climates, and to the storage of vegetables to be used late rather than early in the season. Considerable inconvenience will be experienced at times if vegetables from these pits should be desired during very severe weather.

The situation of a strawberry bed should be open and airy; they will not tolerate shade.—W. A. Dier, Ottawa, Ont.



# Fall Work in the Garden

Henry J. Moore, Niagara Falls, Ont.

**T**HE fall is a good time to improve some kinds of garden soils, but not all. In the case of heavy soils their improvement consists in opening them and making them less cohesive. With light soils, the reverse is the case. The object should be to consolidate and to make them more cohesive or compact. This applies to all light sandy soils, which, when properly drained, naturally or otherwise, do not retain sufficient moisture for the use of the crops, and which during summer dry quickly, and to a great depth.

The improvement of light soils should not be undertaken in the fall. A plot previously unbroken, which contains a good sod, should, of course, be inverted this fall, but plots which have been worked and have been found lacking in the sense that they are too open and do not hold moisture should not be touched until spring. To apply stable manure in any state, but especially in a fresh unrotted one to soils which are too light and to plough or dig them during fall, is poor policy, the practice will defeat the purpose of the work.

By breaking light soils during the fall we favor the admission of frost which disintegrates and pulverizes them and makes them still lighter. The inclusion of stable manure at this time tends to keep them open, and as they have little power to absorb water or at least hold it, valuable plant foods which are formed as a result of the decomposition of the manure are in spring washed away as drainage and are lost to the crop. We may ask, why does this not occur in the case of the heavy soils? Because heavy soils are very compact and very retentive of moisture. When properly cultivated they hold the moisture during summer weeks longer than do sands,

and even when through evaporation the moisture escapes the plant foods as salts released from solution are retained in the surface soil, to be later redissolved.

## Work to be Done Now?

Though we must not disturb our light soils this fall, there is much we may do to facilitate their improvement next spring. Let us now purchase stable manure and store it neatly in a corner of the plot beside the compost heap. Gather all the vegetable refuse and leaves, and add them to the heap. Cover each layer with an inch or so of soil, so as to favor rotting. Obtain a few loads of heavy loam and scatter it over the surface of the plot. These are operations for which there is now more time than in spring, at which time the manure and the compost in a well rotted state should be spread on the plot, and the soil be dug or ploughed at the earliest opportunity. Unrotted stable manure should never be applied to a soil which is already too light.

## Exceptions to the Rule.

We may ask—are there any exceptions to the rule that light soils should not be worked and improved during fall? Yes, if such soils rest upon a clay subsoil it will be of the greatest advantage to plough with a subsoil plough, and to mix the light surface soil and the subsoil thoroughly. If at this time stable manure is also ploughed in, the greatest advantage will in course of time accrue. On small plots trenching with the spade where clay subsoil underlies a light sand is the most effective way to improve the soil. Carbonate of lime as slaked lime or crushed limestone (not quicklime), should be spread over the plot, and in the operation of

sub-soiling or trenching be mixed with the soil and the manure.

Upon plots so treated the effect of the winter's frost will be greatly beneficial. This and the access of air will greatly ameliorate the clay, the action of the lime will be to reduce any acid condition and to release plant food for the crops.

## Peaty Waterlogged Soils.

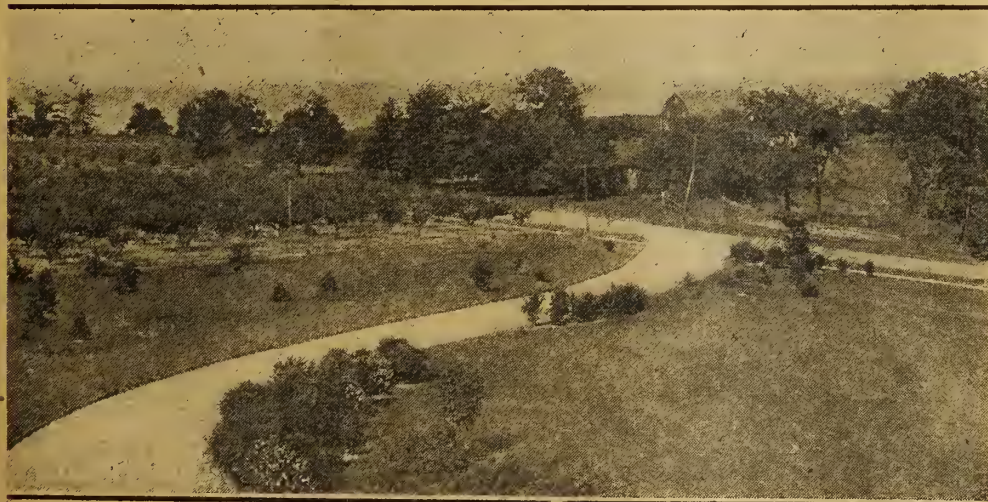
There is another kind of light soil which is an exception to the rule; that is one of a peaty nature which through bad drainage, or through an excess of organic matter holds too much moisture, and is thus unfavorable for the growth of crops. Such a soil should be improved during the fall, if crops are to be planted thereon next year. Many small plots were last year broken along the edges of streams. These in time will produce good crops. They contain plant food but not in the necessary condition. When such plots are broken, if it is found they are too wet, temporary surface ditches may be cut, to carry off the fall rains and the water from the spring thaws. The plots should be ploughed at once and if it is apparent they contain an excess of humus (decaying vegetable matter) a bushel of quicklime (not the carbonate) to one-tenth acre should be spread over the plot, and be worked in.

Perhaps this year you noticed that the crops on some newly broken, peaty soils, did not grow so well and assumed a yellow appearance very early in the season. This would indicate an acid condition. If this condition was caused by an excess of vegetable matter an application of quicklime will very likely remove it, and so sweeten the soil that proper growth will take place next year. If caused by improper drainage, the condition may be only remedied by proper drainage.

When reading this article, please notice that quicklime is only advocated for peaty, and other soils, which contain an excess of vegetable matter, and for very sour soils. It is a very caustic manure. It causes the quick decomposition of vegetable matter and neutralizes acids which may be present. Quicklime is the oxide of calcium, and is obtained by burning limestone (carbonate of lime) in the kiln.

If we expose quicklime to the air in our gardens, it will absorb moisture therefrom, become slaked and form what is known as hydrate of lime, or commonly as slaked lime, and is no longer caustic. Now let us allow the slaked lime to remain for perhaps three weeks and it will absorb carbonic acid gas and become carbonate of lime again.

Why is carbonate of lime in the slaked form better than crushed limestone (which is also carbonate of lime) direct from the quarry, for our pur-



The lawns and grounds of the Vineland Horticultural Experiment Station, Vineland Station, Ont.





A White Pine Hedge is beautiful when well kept like this one.

poses? Because it is in a finer state of division than the original limestone. It is like a fine powder, and is thus more readily rendered available in the soil as a food for plants. Crushed limestone from the quarry is equally as good for soils. Slaked lime, however, should be given preference during war time, although slow and gradual in action it has a more rapid effect, and thus more quickly aids in the production of food.

Let me repeat—quicklime (oxide of calcium) should only be applied to peaty soils, to those which contain an excess of vegetable matter, and to those which are extremely sour. To ordinary soils, which are deficient in lime, this in the carbonate form should be applied.

## Destroy Insect Pests Now

Clean culture plays a most important part in the fight which must be waged against the insects which menace the success of the home gardener's efforts. Cleaning off all the rubbish left over from last season's gardening aids materially in reducing the numbers of the overwintering forms of the insect enemies of the vegetable garden, whose activities are only too great in any case.

Cutworms, which hide in the soil in the daytime and come out at night to feed on the tender growth and cut small plants entirely off, wireworms that damage the tubers of potatoes and other root crops, and a host of other insects, winter under brush and rubbish on the earth or a few inches under ground. Where they can find protection during the cold weather of winter, conditions are ideal for their survival, and the warm days of the spring will bring them out in countless numbers to feed upon the tender foliage of the young garden truck. Neighboring weed patches shelter many forms. Much may

be gained by keeping down the weeds in neglected corners.

Leaves, stems, and other litter should never be allowed to accumulate, or there will be thousands of insects the coming year where there were hundreds last season. Weeds should be cleared up and burned, together with all garden rubbish.

### Work the Soil.

The soil should be thoroughly worked over during the fall to destroy such insects as might spend the winter on, or a few inches below, the surface.

If chickens are available for the purpose, they ought to be allowed free access to the newly turned over soil for a time, as the fresh meat in the form of insects which they will find there will prove a very welcome addition to their diet, and its removal will go far toward insuring a fair start to the garden crop.

## GARDENING PROBLEMS

Wm. Hunt, O A.C., Guelph, Ont.

### Carrot Fly.

My carrots came up in a beautiful feathery row—but in two days were all withered dead. Farmers have said it was the carrot fly and there was no cure. Is there?—J. H.

If the carrot fly was the cause of the trouble, dusting the plants with dry coal soot or wood ashes would be beneficial or spraying them with a weak solution of arsenate of lead made by first mixing one and a half ounces of paste arsenate of lead, or three-quarters of an ounce of dry arsenate of lead in about half teacupful of water. It should be mixed in the following way, viz.: Place the quantity of arsenate of lead in a pail. Pour on about half a teacupful of cold water. Mix this thoroughly first, then add sufficient cold water to make two gallons of the solution. Apply with a fine spray. One or two applications at an interval of a week or ten days should be sufficient. Carrots like a rather light sandy soil, not too rich in fertilizer.

### Cauliflowers.

Some of my cauliflowers grew to large plants but as yet there are no flowers.—T. N.

The cauliflower will doubtless head up in due time if the plants are from a good strain of seed.

### Gooseberries.

My gooseberries seem to be run out. Have been planted for years. Is it possible to slip from the old plants and grow new ones?—L. C.

Possibly the bushes have not been pruned in spring and have become more or less wild. If very dense and thick in their growth, I would advise a thinning out in early spring of a good part of the wood. To secure new plants, some

of the outside or lower limbs of the bushes may be pegged down and buried four or five inches in the soil for a year or longer, until rooted. A good portion of the terminal part or top of the branch should be left out of the soil, the part buried being a foot or eighteen inches from the top of the branch. This is called "layering." If the bushes are very dense a quantity of soil five or six inches in depth may be thrown into the bushes in fall or early spring, and packed down. The branches will often take root in this soil in about a year's time, when they can be severed from the parent plant and planted out separately as young plants. Cuttings of young growth about six or eight inches in length can also be taken about the end of August or early in September. The cuttings should be placed thickly in boxes in sand, and placed away in late fall before winter sets in, in a rather damp, cool cellar, temperature about freezing point or even a few degrees lower. The base of the cuttings should be just below a leaf and should be cut transversely or flat across. They should be taken out as soon as the ground can be worked in spring and put in nursery rows out of doors, thickly. A little sand at the base of the cutting will help them to form root.

### Green Aphis.

Kindly give a remedy for Green Aphis. They are destroying potatoes and beans wholesale in this district.—F. C. J., Owen Sound.

Green Aphis, commonly known also as plant lice and green fly, attack vegetable crops such as cabbage, potatoes, beans, turnips and other vegetables, often causing much damage. Some years the Pea Aphis, for example, appears in large numbers, and completely destroys both garden and sweet peas. Ornamental and bush fruits are also subject to attack. There are numerous kinds of plant lice. Their color varies, some being red, others green, while still others are dark colored. They are sucking insects and live solely on the juice which they suck from the plants. To combat this pest successfully, the work should be started in the spring. Plants should be inspected, and if any aphids are noticed, they should be sprayed with a contact insecticide, such as kerosene emulsion, whale oil soap, or a tobacco preparation. As only the lice which are hit by the spray will be killed, the work should be done thoroughly. While the best results are obtained by spraying early in the season, sprays may be applied beneficially when the season is advanced.

## Prepare Your Garden Now!

October is the month in which to prepare the ground for planting early vegetables and garden crops next spring. Quality in vegetables is large-



ly dependent on rapid growth, and, this, in turn, is dependent on the early tith and the richness of the soil. Fall plowing and digging and other preparations bring about the ideal conditions of the soil as seed-beds and favor quick growth of vegetables.

For onions and other heavy-feeding crops a good coat of manure should be turned under, and, if possible, another coat added to the surface of the plowed ground. If the land tends to wash, it would be well, lightly to plow this last coat under, and then cover it deep enough to let it mix with the soil, but

leaving the rough surface exposed to the weathering action of the winter frosts, snows, rains and thaws.

These operations will insure there being in the spring a finely pulverized seed-bed, very favorable to the growth of delicate and shallow-rooted seedlings. But if plowing and other preparation of the ground is left till spring there is a loss in time from other work that should be done then, and the delayed preparation results in the soil not being what it should be to favor rapid growth and fine quality of early vegetables and garden crops. Plow and manure your garden patches now.

## Storing Vegetables in Cellar and Pit

Prof. J. W. Lloyd, Chief in Olericulture, Urbana, Ill.

THE home garden may be made a means of furnishing a winter as well as a summer supply of vegetables, if in addition to canning and drying certain products, proper provisions are made for the storage of other vegetables in the fresh state. The staple home garden crops suitable for storage include beets, carrots, parsnips, turnips, potatoes, cabbage, onions, squashes, and sweet potatoes. Not all these vegetables keep equally well under the same conditions of temperature, moisture and air circulation. Beets, carrots, parsnips, turnips, and cabbage keep best at a low temperature, in fairly moist atmosphere, and without much circulation of air about the stored product. Potatoes require about the same temperature as these crops, but should have more complete ventilation. Onions demand very low temperature, but dry instead of moist air, and must be freely exposed to air in circulation. Squashes and sweet potatoes require a higher temperature than any of the above mentioned vegetables and the

air must be dry and circulate freely about the stored product.

Three places which may be available for storing the home supply of vegetables are the cellar under the dwelling, a temporary outdoor pit, or a permanent outdoor cellar. If the house is heated by a furnace located in the basement, it is necessary that a part of the cellar be partitioned off by means of an insulated wall, if the vegetables requiring low temperature are to be stored in the cellar. The only vegetables of those mentioned, that will keep in the same room with the furnace are squashes and sweet potatoes. These may be placed on shelves in the furnace room, where they will keep in excellent condition. All the other vegetables mentioned above may be kept in a special room in the cellar if proper precautions are taken to insulate the walls and provide for ventilation. If possible, the end or corner of the cellar partitioned off should contain two windows. The partition wall should be provided with an air space by sheath-

ing upon both sides of the studs and using a layer of building paper on each side also. The door should be made very tight, or double doors used. The root crops (beets, carrots, parsnips, and turnips) and cabbage will keep better in such a cellar room if they are buried in boxes of sand or earth. This prevents any objectionable odor from the turnips or cabbage, and assists in preventing shrinkage due to loss of moisture. Potatoes should not be buried, but should be placed in bins preferably made with a slatted floor and slatted sides so that the air may circulate freely through the stored potatoes. Unless the windows can be darkened, a blanket or some old sacks should be placed on top of the bin of potatoes to shut off the direct light. The onions should be placed in slatted crates or baskets and suspended from the joists of the ceiling. With proper ventilation of the entire cellar through the windows whenever the temperature and humidity outside will permit, the air in the storage room may be kept sufficiently dry so that onions hanging in the upper part of the room will be in an atmosphere fairly well suited to their requirements. On the other hand, the root crops and cabbage which require more moist conditions and less circulation of air, are maintained in satisfactory condition by reason of their being surrounded by moist sand or soil. Thus, it is possible to keep, in the same room, these various products requiring somewhat different storage conditions.

While the storage of vegetables in the basement under the residence puts them in a very accessible and convenient place from which they may be secured in any quantity at any time they may be needed, they are likely to keep not quite so late in the season as if they were placed where a somewhat lower temperature exists during midwinter.

### Outdoor Cellars.

The objectionable features of indoor cellar storage, in that such storage does not furnish ideal conditions for extremely long keeping of vegetables, and of outdoor pits, in that they are likely to be rather inaccessible at times, are fully overcome in the outdoor cellar as a storage place for root crops, potatoes, and cabbage. An outdoor cellar is an underground structure, preferably built in a hillside and fully covered with earth except at one end where the entrance is located. Ventilation is provided for by means of large ventilator shafts through the roof and cold air intakes under the floor. In addition to being located where the natural drainage is good, thorough drainage is provided by placing a line of tile around the outside wall and also by having the air intake serve as a drain for surplus water that might in any manner gain access to the cellar.



The inexpensive vegetable storage cellar of a large and successful market gardener at Montreal West. Note the ventilators.



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Fruit Edition .....	1,411
Floral Edition .....	5,653
Beekeeper .....	1,771

Net Paid Circulation .....	8,835
Total Printed .....	10,286

Advertising rates, \$1.40 an inch. Copy re-  
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Manager, Peterboro, Ont.

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THE CANADIAN HORTICULTURIST,  
PETERBORO, ONT.

## EDITORIAL

### The End of War

No class in the community will tend to  
profit more by the cessation of hostilities  
than fruit growers. Almost since the out-  
break of hostilities the fruit industry has  
been seriously disorganized. While the  
need for agricultural products has stimu-  
lated general agriculture, fruit, being look-  
ed upon as something of a luxury, has been  
largely ignored as a food product. The  
unfortunate results of this condition have  
been greatly intensified by the embargo on  
fruit. In addition the increase in the tariff  
has increased the cost of the fruit growers'  
supplies at the very time that his markets  
have been disorganized by the conditions  
mentioned. The recent restrictions on the  
sale of sugar for preserving purposes have  
intensified the fruit growers' difficulties.

While it will be some time after hostili-  
ties have ceased before any great improve-  
ment in conditions can be looked for, never-  
theless a steady improvement may be ex-  
pected to commence almost immediately.  
Instead of more restrictions those now in  
force should be reduced one by one until  
in due time more normal conditions will be  
established. This cannot take place too  
soon. Not for many years has the fruit in-  
dustry been in the disorganized condition  
that it is to-day. A restoration of confi-  
dence in the future of the industry is greatly  
needed. This the cessation of hostilities  
should soon effect.

### The Need for Thrift

Carefully compiled statistics have re-  
vealed the fact that in so-called prosperous  
communities ninety-seven per cent of the  
population die poor. For years on this con-  
tinent the percentage of tenancy, in both  
urban and rural communities, has been in-  
creasing not only steadily but even rapidly.  
In the United States for example, were the  
mortgaged farms to be included, it is prob-  
ably well within the mark to estimate that  
fully half the farmers of that great country  
no longer own their own farms, while it is  
said that over ninety-five per cent of the  
people in the city of New York do not own  
their own homes. When it is realized that  
fifty years ago the great majority of the  
people owned their homes or farms it will  
be realized that a great and most undesir-  
able change has been taking place in the  
condition of the people of this continent for  
conditions in Canada have been progressing  
in the same direction.

The foregoing facts call attention to two  
points that deserve more attention than they  
are receiving: First, that a large portion of  
the community are living under conditions  
that prevent them from improving their  
position materially, because of their meagre  
earnings and, second, those people who can  
do so should make it a practise to save regu-  
larly and as much as they can well afford  
to do. With the cessation of the war, pos-  
sibly within the next few months, hundreds  
of thousands of people now working in mu-  
nition factories and on war orders of one  
kind and another will be thrown out of em-  
ployment. This will materially reduce the  
buying powers of the public. It will be  
some years, in many lines, before the raw  
material of many essential industries can  
be materially increased. This will tend to

maintain prices at high levels. These two  
conditions combined will tend to make  
manufacturers cautious about launching  
out into new enterprises or extending their  
present operations. It is quite possible,  
even probable, that this country ere long  
will pass through a very serious financial  
crisis that will be intensified by the exist-  
ence of similar conditions in other countries.

Now is the time to prepare, as far as this  
is possible, for whatever the future may  
have in store. The best means of doing this  
is by saving every possible cent at this time  
and investing it in safe revenue-producing  
securities. These securities will constitute  
a nest egg, the value of which cannot now  
be fully estimated. The National Thrift  
Campaign has been launched at an oppor-  
tune moment.

### Potato Outlook

While it is somewhat early to form an  
opinion as to what the potato crop will be,  
it would appear from present indications  
that the quantity will be above that of 1917.  
Reports received from New Brunswick give  
an estimated yield of 8,650,000 bushels as  
against an estimated yield last year of  
5,000,000 bushels; Prince Edward Island  
gives promise of a better yield than last  
year, although the acreage is slightly less;  
Nova Scotia has a large acreage, with pros-  
pects for a good crop; Quebec also promises  
a large crop of potatoes and all kinds of  
vegetables. In some parts of Ontario the  
prolonged hot, dry weather of July and  
August checked the growth of tubers. For  
that reason the crop may not be as large as  
last year, but there is still a possibility of a  
fairly good yield.

Coming to the western provinces, it ap-  
pears that Manitoba will have the largest  
crop of potatoes in her history, which is es-  
timated at 10,000,000 bushels. This is 1,-  
000,000 bushels more than the large crop of  
1916. Manitoba also reports a bumper crop  
of cabbage, carrots, turnips and all kinds of  
vegetables. Potatoes in some parts of Sas-  
katchewan and Alberta were heavily frost-  
ed early in the season, but it is expected  
that a fairly good crop will be harvested in  
other sections. In British Columbia the  
prospects point to a good average yield.—  
Dominion Fruit Division.

Fruit growers who are in need of power  
sprayers and who can arrange to do so  
might well consider the advisability of pro-  
curing them this fall instead of delaying  
the placing of their orders until after the  
first of the year. This year has again dem-  
onstrated the fact that careful spraying  
pays. In the United States the War Emer-  
gency Board is urging growers to place  
their orders for power sprayers now while  
deliveries can be more easily made and  
while transportation is at its best. In ad-  
dition, the cost of supplies is constantly ad-  
vancing and orders placed now may result  
in considerable savings.

The war has led tens of thousands of  
people to keep gardens who never did so  
before. While a considerable percentage  
of these people have not realized returns  
commensurate with their expenditures for  
supplies, to say nothing of the time they  
have devoted to the work, nevertheless the  
results of this work have been so eminently  
satisfactory in probably a large majority of  
cases that many thousands of people may  
be expected to continue their gardening  
activities after the war is over. Thus, in  
this respect at least, the war will have been  
beneficial in its results.



## : SOCIETY NOTES :

### Ontario Horticultural Association

The Ontario Horticultural Association convention will meet on Wednesday, Thursday and Friday, November 13, 14 and 15. It will be a three day session instead of two days as previously. Instead of commencing at 9.30 a.m. on the 1st day, it starts at 2 p.m., giving delegates time to come in on the morning train and have dinner before assembling. Then on the following day a full day's session will be held and on the third day the convention will adjourn at noon, giving delegates who wish the whole afternoon to visit or shop. It is to be hoped that this change will prevent late arrivals and early departures. The election will be held near the middle of the convention when all are present. Two evening sessions will also be held to be addressed by prominent men. War gardens will be dealt with extensively. A most interesting and profitable programme is being arranged and everything points to a most successful meeting. Though Hamilton extended a very pressing invitation to hold the convention there it has been decided to meet in Toronto as usual.

### North Riverdale

A flower and vegetable show that would do credit to any community was that of the North Riverdale, Toronto, Horticultural Society, which was held Saturday afternoon and evening, August 31, in the hall of the Riverdale Presbyterian Church.

The show was formally opened by the Minister of Agriculture for Ontario, Hon. George S. Henry, who congratulated a large gathering of exhibitors and visitors upon the splendid exhibition, and expressed the hope that the gardeners of Ontario, who were so splendidly backing up the fighting forces at the present time, would keep up the work after the war.

The show was established but two years ago, and now has nearly one hundred members. The principal prizes this year were won by Mr. Charles Honeyman, 42 Harcourt Avenue, who had six firsts. Mr. J. Walker, 22 Hurndale Avenue, won first prize for "ideal back garden"; Mr. James Milne, 85 Fenwick Avenue, had the best war garden, and Mr. Honeyman the best vacant lot garden.

### Toronto Vegetable Show is Big Success

The war time show of vegetables and flowers held at the Armouries in Toronto, from September 11 to 14, was a huge success, and attracted large crowds each night. As an exhibit of the products of amateur gardeners claim was made that it was the most wonderful exhibition of its kind ever held in the world and the very fine display leaves no room to doubt the statement.

The show was intended to include and have the assistance of every gardening association in Toronto and the immediate suburbs, anyone living within five and a half miles from the corner of Bloor and Yonge Sts., being eligible to enter. The

entries numbered some 3,000 in all, adults and children alike being represented. Returned soldiers had several exceptionally good exhibits. Every vegetable and flower shown was good and many were simply wonderful in size and general conformity to the points that mark them as excellent. An ideal collection from the prize exhibits in 30 different classes was made and shown in five different centres where talks were given on the methods of working for the prizes awarded.

A tribute to the war-time production of Toronto was given recently when a representative of the British Government stated inspiration had been given to the City of Edinburgh through the work of the Toronto Rotary Club, and that later the enthusiasm of the movement had spread, resulting in an extra production of 3,000 tons of potatoes in the British Isles.

### Hamilton

As a part of their national service work, more than 150 boy scouts of Hamilton, turned their attention to gardening and greater food production. Assisted and encouraged by the local Council of Women, the Women's Patriotic league, the Hamilton Heroes chapter, I.O.D.E., and Mrs. Hendrie, "Holmstead," the boys made a success of their garden plots and have won the approval of the many persons deeply interested in them. Prizes for the season's work were awarded early in September.

Special mention is due a number of the workers who did not receive prizes, among them Thomas Tindale, who, in addition to working ten hours per day at his "regular job" tilled a half-acre garden at his home and also did his share on the plot worked by his scout troop.

### A War Garden Market

An interesting plan to provide a market place for the produce from war gardens has been put in operation in Oklahoma City. One hundred women of that city signed notes for \$25 each, payable the 1st of September, and the entire amount was underwritten and is now being used for the erection of a building. This building is being constructed at cost and will provide a market place for those who grew the produce offered for sale. A Liberty Kitchen will be established in this Liberty Market, to can and preserve the produce which is not sold. The market, it is believed, will maintain the kitchen by the payment of wagon dues, and the kitchen will provide an excellent stand for the market, with a ready outlet for its produce. The kitchen will accommodate classes of 50 women and will contain a complete canning outfit. The proceeds from the canned produce will be used to defray the initial expense of the building and other incidental expenses which may arise, according to the representative in Oklahoma of the Food Administration.

Lindsay, Sept. 23, 1918.

I think The Canadian Horticulturist the finest magazine I have ever come across and am more than interested in it.—F. J. Holland, Lindsay, Ont.



Part of the big display of produce from Toronto war gardens shown at the Armouries in Toronto, September 11th to 14th. There were 86 varieties of vegetables on view in this section.



## Men Mentioned for the Fruit Commissionership

**O**F late considerable interest has been manifested among fruit growers as to who will be the probable successor to the late "Dan" Johnston, as Dominion Fruit Commissioner. The important duties connected with this office make the appointment one of interest to all fruit growers. There is a feeling that the Fruit Commissioner, whoever he may be, should have a practical first-hand knowledge of fruit-growing conditions, including the difficulties fruit growers have to contend with, so that his administration of the department will be sympathetic as far as the growers are concerned. It is realized also that the Fruit Commissioner should, if possible, be acquainted with the production and handling of tender fruits as well as of apples.

Hon. T. A. Crerar, Dominion Minister of Agriculture, is known to favor promotion in the Department where this is possible. He also, however, realizes the importance of men holding such offices having a practical knowledge of growing conditions. Among the men in the Department whose names have been mentioned as possible successors to the late Mr. Johnston are Mr. Baxter, who has occupied an important position in the Department for some years, and whose appointment is understood to be favored by some British Columbia Growers, although he is an eastern man. Mr. Baxter has a pleasing personality and is conscientious in his work. He gained valuable experience while representing the fruit division in Western Canada for several years. When the Canada Food Board was organized Mr. Baxter did such excellent work in the fruit and vegetable section that some months ago he was appointed chief of the enforcement of the Food Board. He has proved himself a painstaking official and his claims for the position should be given every consideration when the appointment is made. Mr. F. H. Grindley, the acting Fruit Commissioner, has been in the Department for some years, and has become familiar with fruit conditions from coast to coast. He is a graduate of the Macdonald Agricultural College. The name of Mr. E. H. Wartman, Dominion Fruit

Inspector at Montreal, has also been mentioned.

Three men strongly advocated in Ontario are Dr. A. J. Grant, of Thedford; Mr. Foster, of Burlington; and Prof. F. W. Broderick, of Winnipeg. The following information relating to these men may be of interest as well as the reference to Mr. Wartman, whose illustration appears on page 6 of this issue:

### Prof. F. W. Broderick.

Prof. F. W. Broderick, of the Manitoba Agricultural College, Winnipeg, spent his boyhood on his father's fruit farm in the Niagara district, Lincoln County, where he was born in 1879. In 1899 he entered the O.A.C. at Guelph, graduating as a specialist in horticulture in 1903. The same year he did some work for the Ontario Department of Agriculture in spraying with Bordeaux mixture to eliminate mustard in the growing grain crops. In the fall of 1903 he applied for and was accepted as an assistant in the Dominion seed branch under Commissioner G. H. Clark, and was sent to the Maritime Provinces, which position he held for three years. While there he obtained an insight in Nova Scotia fruit conditions. In 1907 he applied and was accepted as a teacher in horticulture in the Manitoba Agricultural College at Winnipeg, and after teaching for a number of years was appointed professor of horticulture and forestry, the position he now holds. While living in Winnipeg Prof. Broderick has had a splendid opportunity to study the fruit trade of that part of the Dominion. In connection with his college work he has also had a wide outside public experience, which, coupled with his first-hand knowledge of fruit-growing conditions both East and West, is believed by those who know him to admirably fit him for the work of Dominion Fruit Commissioner.

### Mr. H. T. Foster.

Mr. Foster, whose name is prominently mentioned for the position of Fruit Commissioner, lives in Nelson Township, near Burlington, Ont. He has farmed and grown fruit all his life in one of the best fruit dis-

tricts of Canada. The Burlington district is centrally situated in the Province of Ontario, and an kinds of staple fruits—apples, pears, plums, cherries, strawberries, raspberries, blackberries, and currants—are grown there in abundance, as well as some grapes and peaches. It has been recently stated that more fruit and vegetables are shipped yearly from Burlington Junction by G. T. Ry. and C. P. R., and by radial railway, motor truck and horse-drawn lorries over the cement highway, East and West to Toronto and Hamilton, than from any other point in the Dominion.

Mr. Foster has had a wide experience, and has made a success of fruit-farming. He has been for years president of the Burlington Fruit Growers' Association and a member of the Burlington Co-operative Fruit Shippers, who shipped apples and pears in boxes in carlots over twenty years ago to Great Britain. For three years he was a director of the Ontario Fruit Growers' Association, and represented the board at the Toronto Industrial Exhibition; is frequently asked to judge fruit at different shows; has often been sent as a speaker by the Ontario Department of Agriculture to address meetings of farmers and fruit growers in various parts of the province, and is a staunch advocate and defender of the interests of the fruit growers.

### Dr. A. J. Grant.

Dr. A. J. Grant, of Thedford, is one of the best known fruit growers in Ontario. He is among the largest and most successful growers of small fruits, peaches and apples in Lambton county, a county which for some years has enjoyed an enviable reputation for the quality and extent of its fruit production. Some years ago he organized and has since managed the Thedford Fruit Growers' Association. This is one of the most successful organizations of the kind in the province. In 1914 Dr. Grant was elected president of the Lambton Fruit and Vegetable Growers' Association, an office which he still holds. The same year he was elected a director of the Ontario Fruit Growers' Association, and within two years had advanced to the office of president, a some-

(Continued on page 246.)



H. T. Foster, Burlington, Ont.



Dr. A. J. Grant, Thedford, Ont.



Prof. F. W. Broderick, Winnipeg, Man.



# Niagara District Notes

By F. G. W. Pattison, Winona, Ont.

THE latter part of August was hot and dry, but September has proved exceptionally cool and wet in the fruit belt. In consequence of the long drought and great heat early plums and peaches were rather on the small side, although of most excellent quality. It is a long time since plums have been so free from rot as this year. So far the plum crop has been the best fruit crop of the season, and owing to the cool weather has hung well. Thousands of baskets of plums have been shipped from the Winona-Grimsby district, and there are still a lot of late plums to come on. Grand Dukes, Monarchs, Reine Claudes and Damsons. One grower in this neighborhood has as pretty a crop of Shropshire Damsons as I ever saw. This plum seems to be making good in this section. They are great bearers and fine handsome trees of vigorous growth. Latterly, chiefly owing to the difficulty of obtaining sugar in the towns and cities, plum prices have been rather disappointing as dealers have been paying as low as 40c to 50c per 11-quart basket, whereas those who contracted earlier in the season are receiving from 65c to 90c per 11-quart basket. In the Hamilton market prices have been better, running from 40c to 65c per 6-quart basket, and 75c to \$1 per 11-quarts. It seems a pity that when the Food Control Board issued their regulations restricting the sugar consumption at preserving time that they did not at the same time issue simple directions for preserving fruit without sugar. Sugar, as most fruit growers know, is not necessary in the canning of plums, because sugar adds nothing to the keeping qualities of canned fruit, the secret of which lies in proper sterilization, sealing, etc. Perfectly sterilized and properly sealed fruit will keep and sugar can be added at the time of using.

The long dry spell provided favorable conditions for dry rot in tomatoes, which has been very bad and has pretty nearly cut the tomato crop in two in the Niagara District. The first set of the early varieties was not much affected, but later sets were and the first set of the late tomatoes was very badly affected. The following report from Beamsville is an example: "Dry rot in the tomato fields is more prevalent than was at first expected, and a heavy acreage planted for the canning factories will be a total loss. In many fields of three and five acres almost 60 per cent of the ripening crop is rotting. The early varieties did not seem to be so badly touched." In consequence of this the dealers have had hard work to get tomatoes to fill their orders and prices have stiffened somewhat. The cool wet weather of September, however, seems to have checked its ravages, but there will not be near the crop that was expected. Early peaches are over now, St. John peaches are also nearly done and Crawfords are on the market. The peach crop is turning out about what was expected, from 35 to 40 per cent of an average crop. Crawfords are decidedly light, although a few orchards have a good crop. Elbertas and later peaches are somewhat better. Prices are good, running from 60c to 85c for 6-quarts, and from 85c to \$1.40 for 11-quarts.

Bartlett pears are a fair crop in this section and prices have been running from 60c to \$1 per 11-quart basket. Duchess pears are on the whole light, Clairgeau and Kelfer

being a pretty fair crop; other kinds are light. Fall apples, particularly Gravensteins are a good crop in this section. Of later apples, Snows and Greenings are the best, although there is a fair sprinkling of Russets and Baldwins. It has been stated that the varieties of tomatoes which have proved most susceptible to rot this season are Chalk's Jewel and Ignotum. The rot is said to be caused by a fungus which attacks the pistils of the tomato plant when the latter is very young and which ultimately kills the cells. Black rot spreads rapidly in a tomato patch and affects everything forming within its radius. The only possible remedy to combat the evil is in rooting out the diseased plants and burning them just as soon as a trace of the fungus is noticeable. As the fungus works internally, this is the only known remedy. Some of the growers believe that the disease is started in the hot bed or cold frame.

In the latter part of August A. W. Despard, of the Department of Agriculture, was in the St. Catharines district securing samples of fruit to be placed in large jars for exhibition purposes. Strawberries, cherries, plums and peaches were secured, and then Mr. Despard left on the steamer with a carload of exhibits for the Toronto Exhibition. Mr. Despard is to remain in the vicinity of



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St. Catharines till late in the fall gathering more fruit specimens. These exhibition jars contain the fruit as it was found growing in the orchard, the branch and leaves being intact and kept fresh by the preserving liquid in the jars.

Grapes have been on the market for some time. Champions, Moore's Early and Campbell's Early; a few red grapes also. Concord and Niagaras are not ripe yet, but will be shortly if the weather stays favorable. Grapes are only about 40 to 50 per cent of an average crop. The price is likely to be fairly good, as wine and jam men are offering in the neighborhood of \$35 a ton. A report from Grimsby says: "The fruit shipments from the Grimsby East station are growing daily. Peaches and pears are preponderant, but some grapes are being shipped and tomatoes are being sent out in car load lots. A report from Old Niagara says that the first few days' operations of the Community Canning Kitchen there has resulted in 2,211 pounds of jam being put up by the Girl's Service Battalion and their helpers, besides quantities of canned fruits, pickles, canned tomatoes and beets, all of which goes to the Red Cross Kitchen at Hamilton for distribution among our Canadian soldiers overseas. Mrs. Rigg, Commandant of the Girls' Service Battalion, is delighted with the generosity of the fruit growers and citizens of Old Niagara in giving fruit and vegetables for this purpose.

A report of Sept. 16th says that the peach season is at its busiest at Niagara-on-the-Lake and that growers are very busy packing and shipping their crops. As in former years, a good deal of the fruit is shipped out by train and trolley, though the steamer carries a full cargo on every trip. The Michigan Central sends in a special train every night to take out the fruit, refrigerator cars being provided for fruit consigned to distant points. Locally, less fruit is being canned than ever before, owing to the difficulty of obtaining sugar, and it is safe to say that many tables will lack the usual addition in the way of fruit during the winter as a result. Jobbers and wholesalers are awaiting definite prices on new pack canned goods, etc., for the ensuing season. These should be out soon. It is probable that canned tomatoes will be available at a better figure than that even promised a few weeks ago. Quebec province has produced a good yield this season, and there will be a good condition in this respect elsewhere. Canada's allotment of dried prunes, peaches, and apricots is likely to run pretty small,

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as the U. S. government has taken over most of the crop for army use. As regards the canning trade there has been little change in the situation lately.

The rains and hot weather have introduced an element of danger as far as the tomato pack is concerned, that is causing a good deal of anxiety, but as yet there have been no reports of any serious damage.

District canning factories are now busily engaged on tomatoes. There is a probability that prices for the new pack will be somewhat lower, and the price of 20 cents a tin to the consumer is looked for.

Peach, pear, and apple orchards along the South Shore of Lake Ontario in New York State show very severe damage from last winter, much of the trouble was caused by temperatures below the zero point.

## Men Mentioned for the Fruit Commissionership

(Continued from page 244.)

what remarkable record in such a long-established and well known organization. In 1914 he was selected as one of the delegates to represent Ontario at the Dominion Fruit Conference held that year at Grimsby. Last March he was one of the six Ontario delegates called to Ottawa to advise with the Government in reference to the then proposed amendments to the Inspection and Sales Act, which have since been enacted into law.

Dr. Grant is still a young man. He is full of energy, is ambitious and has a practical way of looking at public issues which his friends point out is a quality greatly needed in any person holding the important office of Dominion Fruit Commissioner. He is an effective public speaker and has a faculty of inspiring confidence in his judgment. It is these qualities which have led to his selection for so many public offices.

### Mr. E. H. Wartman.

Mr. E. H. Wartman has been Dominion Fruit Inspector at Montreal for a number of years, and has gained a wide experience in this work. He was born at Eden Villa Farm, on Lake Ontario shore, Frontenac County, five miles west of Kingston, where he pursued general farming, with an orchard of many kinds of fruits as his hobby to supply local trade.

In 1880 he crossed the Atlantic with 500 barrels of apples to London, England, and met with success. In 1882 he crossed with a larger lot. In 1892 he crossed the Atlantic, sailing from Montreal on S.S. Amaranthia, with over 3,000 barrels of apples. In 1902 he crossed the Atlantic as superintendent of Canadian Fruit Exhibition at Wolverhampton, England, and Cork, Ireland. In all he has crossed the Atlantic eight times in the interests of the fruit trade.

He patented a fruit grader some years ago for sizing of fruits, also a fruit box, and is said to-day to have a surprise for fruit men in a fruit sizer of his ingenuity. For ten years he was engaged in the evaporating fruit business in Prince Edward County. He has given several addresses at Macdonald College, St. Anne's, Que., on practical fruit subjects, and has given addresses at fruit meetings in the Province of Quebec on marketing fruits, packing fruits and spraying. On September 1st last he completed his 17th year as Dominion Fruit Inspector at Montreal, Que. Mr. Wartman is a contributor to the news columns of The Canadian Horticulturist, and has been for many years,



## Celery in Cold Storage Practicable

If celery is packed in small well-ventilated crates and carefully handled it will keep in good cold storage for three months, or longer, according to results obtained in a four-year test, reported by the United States Department of Agriculture in Bulletin 579, "Celery Storage Experiments."

The celery used in the experiments during the four years was grown and stored in western New York. Each experimental lot

was packed in the field and crated in the storage house by representatives of the Department of Agriculture. In every instance the celery used was free from disease and was so handled that the different lots were comparable. Six type of crates were used—a standard crate, a partition-ventilated crate, a 16-inch crate, a 14-inch crate, a 10-inch crate and an 11-inch crate.

The smaller crates appear to remove the two chief causes of spoilage—poor ventilation and breakage. In every instance the decay was much less in the small and partitioned crates than in the standard crates. Of the crates used during two or more years,

the 14-inch crate gave the best results, followed by the 16-inch, the partitioned, and the 11-inch solid head, in the order given. Small crates cost a little more than the standard crate in proportion to their capacity, but this disadvantage is more than offset by the smaller percentage of breakage. Small crates are preferred by many storage-house managers and handlers of celery, because of the ease in handling and the smaller amount of breakage. In a market test made in January, 1916, celery in small crates sold for a much higher price than similar celery in standard crates handled in exactly the same way.

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TORONTO

# POULTRY YARD

## Prepare for Winter

C. E. Brown, Northwest School of Agri-  
culture.

The first task to perform when beginning to clean and repair the poultry house should be to clean the interior thoroughly. The walls, ceilings, floors and nests should be scraped and brushed and a good coat of whitewash applied. If the floors are of earth, at least two inches of the surface soil should be removed and replaced with fresh earth or sand. If they are of concrete construction they should be washed and scraped. All cracks and crevices, especially about the roosting quarters, should receive a liberal coat of whitewash. If this work is faithfully performed the poultry keeper should be relieved of considerable worry over the comfort of his fowls the coming winter.

Next make all necessary repairs to windows and doors and to the interior fixtures. It is of great importance to the health of fowls that all broken doors and window-lights be repaired before the first cold snap arrives. Drafts due to carelessness in this respect are almost always fatal to chickens, and such diseases as croup and pneumonia are often contracted as a direct result. An ounce of prevention is worth a pound of cure so see if the next rainy day cannot be used to good advantage by spending it at the poultry house.

## Calendar for October

October is a gentle reminder of winter, and the poultryman is warned about approaching cold weather. It is too cold to risk the health of the poultry by allowing them to roost outdoors. They should be brought in and made acquainted with roosts and houses.

However, before they are placed in their new quarters, the latter should receive a good cleaning and purifying. Use disinfectants, use whitewash, use the broom. Go about the work in a systematic manner.

In some sections there is considerable wintry weather in October, but in others there are many days during which the weather is bright and mild. Take advantage of all good days and complete the repairs to the buildings, and do other outside work.

One thing in particular that should be attended to, is using every effort to guard against dampness. Examine the roofs carefully; and see that the floor in the building is higher than the level of the outside ground, so that there may be no dampness on that score.

Also see that every provision is made for thorough ventilation. Where houses are improperly ventilated, frost is sure to gather on the walls during winter which will produce dampness. Chicken-pox, distemper, roup and kindred ailments in many cases owe their origin to poor housing.

If the pullets are now placed in their winter quarters it will give them a good chance to become acquainted with their new home before they start laying. It is well to have a china egg in each nest, which will guide

them to the proper place when they are ready. The April-hatched pullets should begin laying eggs this month.

Don't delay any longer in culling out all stock that it is not intended to winter. Those fowls in molt, however, should not be shipped as they not only make unsatisfactory eating, but will be cut in price in market. They will bring better returns later on. The extra young cockerels command a good price right now.

## Feeds for the Poultry

A dry-mash, egg ration, as worked out by poultrymen at the Ohio Experiment Station, is made up of: ground corn, 2 parts; bran, 1 part, and meat scrap, 2 parts. This mash when fed in connection with a grain mixture of corn and wheat gave an average annual production of 140 eggs per hen. Omitting the wheat to make the ration conform with Food Administration rulings should not lower the efficiency of the ration.

Other mashes made up of the same materials but in different proportions did not prove satisfactory as a laying ration for hens. When a large amount of meat scrap

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was used in the ration fewer eggs were produced than when a medium amount was fed; similarly, when only a small amount of meat scrap figured in the ration, the egg production was unsatisfactory. From the entire experiment the poultrymen have decided that a satisfactory ration for egg production should contain 12 per cent of meat scrap, but wheat is not necessary for laying hens if the proper proportion of corn, bran and meat scrap are maintained.

People who have a supply of buttermilk or skimmilk in large enough quantities to feed laying hens all they will drink may leave out the meat scrap, as these by-products form a good substitute for meat scrap. Cheaper sources of protein, such as cottonseed meal, linseed meal or soy-beans, however, are not satisfactory as they are not secured from animal sources. Experiments have verified the unprofitableness of attempting to use proteins for laying hens from vegetable sources.

### Poultry Notes

Do as much outdoor work as possible now before bad weather sets in.

Someone has said that a helter-skelter poultryman will have helter-skelter hens, and there is considerable truth in it.

This is a good month to buy new stock.

Hens take to the trees when "varmints" take to the hens.

"The fool shoeth his neighbor's hens from his back yard, but the wise man fixeth up a snug place for them to lay in."

If I were a hen I'd steal my nest, too, if I had to stay in such filthy houses as some hens do. Honest, it is a shame. Clean up, and keep cleaned up.

### The Mosquito Must Go

G. L. Shaw, Victoria, B.C.

Fruit growers of the lower mainland district of British Columbia are determined that the mosquito has got to go. This summer the mosquito pest was so bad that fruit production was materially decreased, because it was practically impossible for the berry pickers to work. Scores of city girls, mobilized by the Y. W. C. A. from school, office and home, responded to the call for harvesters, but the mosquitoes first handicapped their efforts and then actually drove the volunteer harvesters away altogether. A large proportion of the Fraser River crops were left to spoil in consequence. The situation was extremely serious for the dairy farmer, too.

Now, however, the farmers are organizing for a war to the finish against their enemy. Hon. John Oliver, premier of the province, has promised that at the next session of the Legislature a Mosquito Control Bill will be introduced. This act provides for the establishment of mosquito control districts, the proper course to pursue for establishment, the method of levying and collecting municipal taxes.

Dr. Gordon C. Hewitt, Dominion Entomologist, at a meeting held recently in Mission City, said reclamation of the land and drainage were the principal factors to be considered, and he pointed out that the practise of putting coal oil on swamp water was not the cure-all it was supposed to be. Pumps, he said, could be employed in draining the sections of the valley that are below river level. He assured the meeting that the Dominion Department would do all in its power to check the menace, and advised the local formation of an association composed of an engineer, an entomologist and the reeves of the various municipalities concerned as a means of fighting the mosquito and stamping out his breeding ground.

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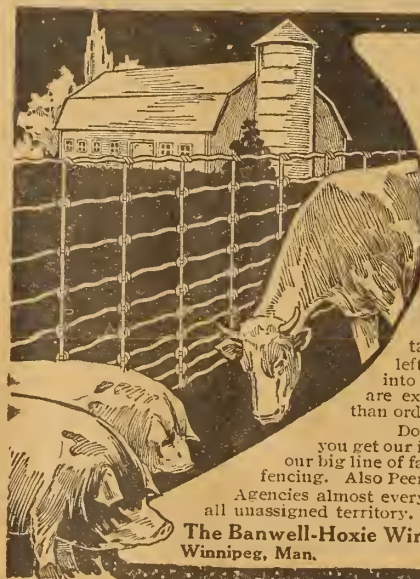


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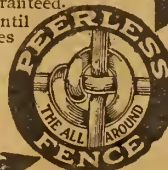
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## Food From Waste Apples

Frank B. McMillin.

In these days, when the world faces an increasingly serious food shortage, it is unwise to overlook any resources that will add good nourishing food to the nation's depleted supply. Therefore, it is surely in order to again call special attention to the importance of properly utilizing that large proportion of the apple crop which grades below standard. In many localities the percentage of cull or cider apples runs fully one-third of the total, and it is frequently estimated that thousands of tons of such apples are wasted each year.

A portion of the larger culls may be evaporated to excellent advantage. Another most practical way of diverting this enormous waste into good food is by pressing. Practically all the valuable and nutritive elements of fruits are contained in the juice. The other parts consist largely of cellular tissue, and are of little value except to retain the juice, which in ripe apples runs as high as 90R. Therefore, a short cut to conserving the rich, life-sustaining elements possessed by even the smallest of cull apples is by first grating and pressing, then working up the juice.

A modern hydraulic cider press will extract an average of a little over four gallons of cider from each bushel of ordinary undergrades. This juice can be readily converted into a variety of food products that are not only appetizing and nourishing, but most of them are in concentrated form convenient to market and easy to preserve. Sweet cider, cider vinegar, boiled cider, apple syrup, apple jelly, apple butter and pasteurized cider are all in active demand, and can be sold at a better net profit than is usually obtained from the apples in a fresh condition.

Even the pomace need not be wasted. It is being used extensively as feed for dairy and beef cattle, and for hogs and sheep. Many pronounce it equal to ordinary corn silage. Pomace also has a distinct value as jelly stock because of its pectin content, which is not impaired by drying. Frequently the pomace is re-pressed, the resulting juice being used for making vinegar or jelly.

## Digging and Storing Potatoes

W. T. Macoun, Dominion Horticulturist, Ottawa.

The best time to dig potatoes, if they are not affected with late blight or rot, is as soon as the tops have died. If the weather is dry or where the tops remain green until killed by frost, the digging should be delayed until that time, as during September there is often a great development of tubers. Where potatoes are grown on the average farm the digging is usually left as a matter of convenience until after the corn is harvested, where that crop is grown, as, when the tubers are covered with soil, the latter may be frozen an inch or so in depth, without the crop being injured. Potatoes should not, however, be left in the ground when there is danger of the ground freezing to a greater depth. When the soil is fairly well drained and not particularly wet the digging may be delayed for a month or more without much injury to the crop if the tubers are healthy; however, where there is no disease the sooner the potatoes are dug, after the tops are dead, the better.

Potatoes which have been killed by late blight will usually rot as soon as the conditions are favorable, and for this reason it is better to leave a diseased crop in the ground as long as possible, as the tubers

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which are diseased will, most of them, show signs of rot before they have to be taken up on account of frost, and they need not be gathered. If diseased potatoes are dug and stored as soon as the tops are dead, the disease will be almost certain to develop in the pit or cellar, and healthy tubers will rot from contact with the diseased ones. It is not good practice to dig diseased potatoes early and pile them in the field. It is better to delay digging as long as possible and then put the potatoes in a cool, well-ventilated cellar where the disease may be checked. Potatoes in wet soil should be dug sooner than those in that which is drier and well drained.

Potatoes should be dug in dry weather, so that when they are taken to the cellar or store-room they will be perfectly dry. If the tubers are housed when wet, the conditions become very favorable for the development

of any disease which may affect them and for the rotting of the healthy potatoes from contact with those thus affected.

### Items of Interest

The Dominion Fruit Division reports that there have been very few changes in fruit conditions during the past month. The Nova Scotia apple crop is still expected to yield approximately 400,000 bbls., or a little over half of last year's production. Much of this crop will be marketed in Ontario and Quebec, and some of it in the prairie provinces. The crop in Quebec will be comparatively light owing in part to many Fameuse orchards having been winter killed. Ontario is expected to yield below a normal crop. All winter varieties are light. Fall varieties in

Western Ontario are one-half of a normal crop, and are also light in Eastern Ontario. Conditions in British Columbia are somewhat better. In the inland valleys the apple crop will average about 10 per cent. less than in 1917. It is of better quality and size.

Commencing on August 15th the latest increase of 25 per cent in freight rates went into effect on shipments originating in territory east of and including Port Arthur and Fort William. Shipments originating at points west of Port Arthur and Fort William are subject to an increase of 25 per cent in rates effective prior to March 15th last.

The use of a spray gun of 250 lbs. pressure damages the foliage if held too near. It should not be used inside the tree, and it is better to keep at a distance outside of the tree.



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## HERBERT PETERS

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See advertisement on page iv.

Canada Food Board License Nos. 3-007, 3-008 and 3-009.

## British Columbia

Chas. L. Shaw, Victoria, B.C.

CONTRARY to earlier reports, the British Columbia fruit crop will show an increase over last year. The apple crop will be well above the average, as well as the most valuable one in history.

M. S. Middleton, Provincial Horticulturist, estimates that fruit production will show a five per cent increase. Early in the spring it was felt that, considering the large acreage and the additional number of trees coming into bearing, the increase would be 20 to 30% over the 1917 figure. May frosts, however, spoiled that prospect, and it was believed in many quarters that damage to the extent of 25% had been caused. The fine growing weather of August has helped materially, and there is every likelihood of a material increase after all.

Apple shipments are expected to exceed 3,000 carloads this fall, and the total value will be around \$4,000,000, as the average price per box is likely to be between \$1.40 and \$1.50. These figures are exclusive of crabapples, which will naturally boost the total somewhat.

British Columbia needs at least 1,000 more berry growers. There is plenty of room for that many, and there is a steady and lucrative demand for everything they could produce. It is estimated that there is a market for ten times B. C.'s normal production of strawberries, for the product of this province has now found its way right across the continent, even as far back as Baltimore, Md., where a considerable shipment was disposed of this fall.

The value of small fruits production in British Columbia last year was as follows: strawberries, \$189,437; raspberries, \$169,938; blackberries, \$34,139; loganberries, \$11,388; red currants, \$4,784; black currants, \$19,676; gooseberries, \$16,394. Total, \$445,756. It is expected that this year's values will be a good deal higher, although Vancouver Island's abnormally dry season retarded growth in that section. Kootenay did particularly well, however, and will be able to compensate for any deficit elsewhere.

Fire blight is the most serious plant disease that must be coped with in the dry belt, according to R. C. Treherne, B.S.A., Dominion entomological field officer. It has been found by experiment that bichloride of mercury is almost useless in disinfecting wounds in trees or in treating shears used in pruning away the parts affected by fire blight. Cyanide of mercury, however, has proved a really effective disinfectant.

The old B. C. Evaporating Co. Ltd., has reorganized under a new name, the Kalowna Packers, Ltd., and has already commenced operations on a large scale. While shortage of help is being felt, the concern expects to pack from 35,000 to 40,000 cases this season. The evaporating plant will be opened up as soon as the canning is over.

Indications are that the embargo which the British Government has clamped down on apple imports into Great Britain will remain in effect this season, owing to the congestion of war supplies destined for overseas. The effect of this course should not cause any concern to growers, for it was thought that when the embargo was on last year the market would be ruined, whereas, as a matter of fact, good prices were obtainable at all times.

British Columbia is destined to be one of the world's leading seed producers, according to Dominion Seeds Commissioner George H. Clark, of Ottawa, who paid the Coast a visit during early September. He was much impressed by the progress made in seed-growing at the Experimental Farm at Bagan

Bay, Vancouver Island, under the direction of Prof. Lionel Stevenson. He found the bulbs growing there the finest he had ever seen. He visited the farm of Mr. J. Steve, at Lulu Island, where mangels were produced last year to the extent of 3,000 lbs. to the acre.

W. E. Scott, Deputy Minister, has severed his sixteen years' connection with the B. C. Department of Agriculture owing to prolonged illness. He was born in Yorkshire in 1866, and has been associated with farming since early boyhood. After spending a few years in New Zealand, he came to this province and ranched in the interior and then on Salt Spring Island until 1902, when he was appointed a member of the Provincial Board of Horticulture for Vancouver Island. Nine years ago he was made Deputy Minister of Agriculture.

The potato crop will probably be a light one this year, according to present reports.

## Winter Care of Vegetables

H. J. Moore, Niagara Falls, Ont.

With the advent of frost the thought of winter storage of vegetables will be uppermost in the minds of all growers. Upon the manner in which they are stored will depend success or failure, and surely failure will reward careless or half hearted methods.

Those who have a root cellar are indeed fortunate. Those who have not need not despair. It is easy to prepare a suitable storage place in the corner of the cellar at little expense except that of labor involved. Select a dry and cool corner, or position in the cellar, which, however, must be frost proof. Buy a few boxes from your grocer, and with the wood construct a number of bins; these need not be more than two feet high, and need not be covered. The divisions will serve to keep the various vegetables apart. Those who have but few vegetables may utilize a few boxes about two feet deep for their storage.

Next procure a quantity of fine sand; coarse gravelly sand should be avoided as it allows of a too free access of air to the vegetables, and thus they dry out rapidly and spoil. Clean lake or river sand is good. Any, however, which is clean and sanitary will serve the purpose.

Do not, like some people, avail yourself of the back yard sand pile in which children have played all summer, or to which dogs and cats have had access. Your cellar where your food is stored should be as clean as any place in the house, if the floor is cold or damp, do not let the sand touch it. Lay rough pieces of board upon it in the bottom of the bins. Upon these place a layer of sand a few inches thick. The bins will now be ready to receive the following roots: Beets, carrots, chicory, parsnips, winter radishes, horse radish and winter turnips.

Use each bin for individual kinds, do not mix the roots. Upon the layer of sand in the bottom lay the roots close together, but not so close as to prevent the next layer of sand from sifting between them. Each root should be surrounded with sand to prevent evaporation of moisture from its cells. It is not wise to place more than three or four layers of roots in the bins or boxes, as air will be prevented from reaching the bottom ones. It should be remembered that the purpose of the sand is not to effectually stop air from entering, but to minimize the amount, and so prevent the loss of moisture.

Vegetables will not keep satisfactorily in a cellar if a furnace exists therein, no mat-



ter how cool the position may be. This also applies to roots in general. The furnace uses up the oxygen as a supporter of combustion. This causes a gradual but certain change of air in the cellar. The moisture is lapped from the air, and all bodies which contain it are levied upon, and none more so than the vegetable roots. We should not make the mistake of supposing that evaporation does not take place at a low temperature. It does, only more slowly than when it is high.

## Syrup From Apple Culls

For those who have a great many second grade apples and culls on hand, the making of apple syrup is profitable. The acids are removed by boiling the cider with precipitated chalk (calcium carbonate, or whiting.) This neutralizes the acids of the cider, converting them into insoluble calcium salts, which settle to the bottom and are removed by decantation.

Add three-fifths of an ounce of precipitated chalk (obtainable at any drug store) for each gallon of cider used, bring to a boil, and boil vigorously for five minutes, removing the foam and scum as fast as formed. Pour into containers as tall as are available. Two-quart mason jars will do, or even big preserving kettles. Let stand quietly for four or five hours. Then carefully pour off the clear liquid, throwing away all the sediment at the bottom. Boil the clear liquid rapidly down to a syrup, removing all scum. The syrup should boil at 220 degrees Fahrenheit.

The syrup is placed in bottles or mason jars and sterilized by placing the containers in boiling water for 15 minutes. If the whole outfit is then allowed to cool slowly, the little sediment in the syrup will settle to the bottom and leave a clear, bright, very pleasing mild syrup, with a delightful apple flavor.

## Items of Interest

Vegetable experts of the Ontario Department of Agriculture who investigated the potato blight in Lambton County this past season found that the fields were seriously affected. New phases of blight which so far have baffled discovery of cause and origin have appeared, along with the older and better known types. Potatoes are in consequence expected to be impaired in quality and in yield. The remedy is said to be fresh, vigorous seed from New Ontario. It is held that much of the seed used in this country is "run out" by repeated planting.

During 1917 there were shipped from Ontario 97,782 gallon cans of jam to the Canadian military hospitals overseas. At market prices this jam was worth \$84,302.

A comparative statement of the express movements of fruit and vegetables from all points in British Columbia for the past seven years shows a wonderful development in the fruit industry during that period. The comparative table from 1911 to 1917, with the number of packages and total weight in pounds, is as follows:

	Packages	Weight
1911 .....	104,705	2,784,777
1912 .....	166,400	4,330,233
1913 .....	208,262	5,203,946
1914 .....	259,470	6,326,903
1915 .....	318,752	7,598,997
1916 .....	312,622	7,496,151
1917 .....	426,039	10,526,784

Of the 1917 crop, Okanagan Lake and Shaswap points are credited with 209,196 packages of fruit and vegetables, or 5,391,850

lbs., which is rather more than one-half of the total shipped. Summerland was the heaviest shipper in point of weight, having 1,245,551 lbs. to its credit, followed by Hatzic, 1,047,822 lbs.; Armstrong, 863,819 lbs.; and Penticton fourth, with 804,411 lbs.

While 90 pounds has been the legal standard for a bag of potatoes in Canada for a number of years, and has been generally adopted in most of the large commercial potato districts, there has not, until this season, been machinery for enforcing this standard. The Sections of Inspection and Sale Act respecting the weight of a bushel, bag or barrel of certain commodities, have now been transferred for administration to the

Department of Agriculture, and the Dominion Fruit Inspectors are charged with seeing that these sections are complied with. Anyone, whether grower, jobber, wholesaler or retailer, who sells or offers for sale potatoes in any bag containing less than 90 pounds, renders himself liable to penalty.

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	Each	Dozen	100
Crocus in four colors.....	.03	.25	\$1.65
Freezias.....	.04	.30	2.15
Lillies, Calla White.....	.25	2.50	—
Lillies, Chinese Sacred.....	.30	3.00	—
Hyacinths, Roman, four colors.....	.10	1.10	8.50
Hyacinths, Dutch, four colors.....	.10	.95	6.50
Narcissus, Single, six varieties.....	.05	.50	3.50
Narcissus, Double, four varieties.....	.05	.50	3.50
Narcissus, Paper White.....	.07	.65	4.25
Scilla Siberica.....	.04	.35	2.65
Snowdrops, Single.....	.04	.30	2.10
Tulips, Single, Mixed.....	.05	.40	2.50
Tulips, Double, Mixed.....	.05	.45	3.00
Tulips, Parrot, mixed.....	.05	.45	3.00
Tulips, Darwin, mixed.....	.05	.45	3.00

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**Will Nursery Stock Advance in Price?**

Charles A. Green, Rochester, New York.

Nurserymen in the United States lost money heavily during the Civil War, and many of them were compelled to go out of business. At the close of the war the prices of plants, vines and trees greatly increased. I am told that apple, pear, plum, cherry and peach trees advanced in price at this period to about \$1.00 each. No one can tell now how seriously the nursery business may be affected by the present war or what the prices will be at the close of the war, but there are certain conditions that are fundamental and can be understood at a glance.

The seedlings, that is the little trees grown most largely in France, in ordinary times, are imported to this country in large amounts. These seedlings are the base of the nursery business. During the past few years the French, being actively engaged in war, have not been able to grow these seedlings as heretofore, therefore the supply has been so largely reduced that American nurserymen cannot hope to receive a full supply. Without these seedlings the nursery business in this country cannot be conducted as successfully as in the past.

Here is a peculiar circumstance: Nurserymen propagate trees most largely by budding. The buds after being inserted in the seedling stocks have of late years been tied and held firmly in place by a product known as raffia, a silky ribbonlike substance which holds the bud firmly in place until it has obtained a foothold in the little seedling. Of late it has been impossible to secure a supply of this raffia, which has in past years been imported from Europe. Nurserymen have been obliged to use substitutes. In many instances these substitutes have failed utterly to protect the inserted bud. As a result the budding of many nurseries has been an absolute failure, not only causing nurserymen serious losses but diminishing the supply of fruit trees.

Thus there is good reason for assuming that the production of fruit trees in this country will be greatly reduced in the next few years.

The winter of 1917-18 was one of the most severe ever known, causing the destruction of a large portion of the fruit trees growing in nurseries of this country. Peach trees in particular were wiped out by the million by the severe winter, and in many instances apple, pear, plum and quince trees were utterly destroyed.

Typewriters had been used for a quarter of a century before the Underwood was thought of, but the growth of the Underwood business is one of the wonders of the modern industrial world.

It is regrettable that during the past few years not everybody who wanted an Underwood has been able to get one just when he wanted it. There are not enough to go round, not even with the largest typewriter factory in the world (60% larger than any other) making more than 600 machines a day.

This enormous business did not come by accident. It is the result of selling the best typewriter at a price consistent with its value, and giving customers the best service ever offered in the typewriter business. United Typewriter Co., Limited, 135 Victoria St., Toronto.

(Advertisement)



Mr. E. H. Wartman, Dominion Fruit Inspector, Montreal, Que. Mr. Wartman has been a frequent contributor to the columns of The Canadian Horticulturalist. A reference to him appears on page 244.

A further reason why higher prices must be expected for fruit trees is that the cost of everything entering into the production of trees has advanced in price. The price of labor has increased, and the cost of producing a tree is largely labor cost, but aside from this there are many items necessary to the nursery business which cost now more than twice the ordinary price. I refer to rope, twine, burlap, lumber for boxes, labels, paper for lining boxes, etc. Notwithstanding the prospective advance in price of nursery products, it is profitable with good management to plant fruit trees.

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# THE CANADIAN HORTICULTURIST

Vol. 41 - No. 16  
NOVEMBER - 1918

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# The Farmer Must Safeguard His Own Market

In the fiscal year ending March 31st, 1918, Canadian Farmers sold to the Allies abroad the following bill of goods:—

Butter and Eggs	-	4	million dollars.
Cheese	-	36	" "
Grain and Flour	-	500	" "
Vegetables	-	19	" "
Meats	-	76	" "

A total of - 636 " "

Yet, most of this was paid for with Canadian Money—the money subscribed to Canada's War Loans. Canada had to finance these sales to the Allies—"carry" them, as a storekeeper "carries" good farmers' accounts.

If the money had not been available; if Canadians had not bought heavily of Victory Bonds, most of that surplus crop would still be in Canada—unsold: that highly profitable market would not exist.

Canada can sell abroad now, only as much merchandise as she herself can finance. She must give "credit" to her best customer. Canada must accumulate her own working capital if she wants to hold her market. She must save the profits on this year's trade and re-invest them in Victory Bonds—or the market, and the high prices that depend upon it, will pass out of her control.

Every Canadian Farmer should, therefore, realize the vital importance at this moment, of the Victory Loan 1918. This is the time for building a solid national structure. Canadian Farmers are making money. Let them use it now to maintain their own market. Let them invest it now, in Canada's Victory Loan 1918 that there may be enough funds in Canada to pay for the tremendous crops now seeking a market.

## Get Ready to Buy Victory Bonds

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# The Canadian Horticulturist

Fruit Edition

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## Apple Scab and Its Control\*

Prof. J. W. Eastham, Vernon, B.C.

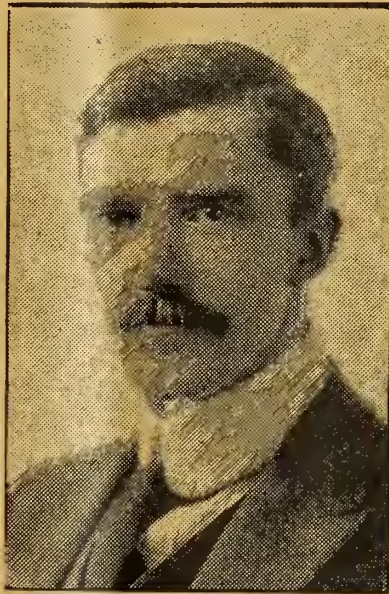
THE essential cause of apple scab is a fungus. The scab spots on the fruit and on the leaves are composed of the threads of the fungus and the spores produced from them. It is not my intention to discuss the nature of the fungus itself, but there are a few points which it is necessary to keep clearly in mind if we are to understand the nature of its work and the steps we should take against it. In the first place it has the power of reproducing with great rapidity if the conditions are favorable. Each scab spot may produce spores in great numbers and each of these spores may give rise to another scab spot with ripe spores in two weeks or so. If any considerable portion, therefore, of the spores produced attain their purpose it is not difficult to understand the rapidity with which the disease may spread in an orchard. This form of reproduction may go on through the summer and early fall, but these spores do not usually last over winter to start the disease in the spring. For this purpose a different kind of spore, known as an ascospore, is produced in the old leaves lying under the trees during the winter, and these are scattered from about the time the buds are beginning to break in the spring until some time after the blossoms have fallen.

Although the primary cause of the disease is a fungus, there is one essential condition for its growth and multiplication. This is surface moisture on the leaves, flower stalks, fruit, or other susceptible parts. Dew or occasional showers are not sufficient for this purpose. These may cause the spores to germinate, but the young fungus will be killed off by drying before it has a chance to grow into the tissues and bring about infection. The leaves, etc., must be kept moist for two or three days at a time, by rains close together or followed by dull, muggy weather, so that the trees have not a chance to dry off. Under such conditions we may expect scab to appear rapidly.

### PREVALENCE OF DISEASE.

As a consequence of this necessity for moisture, we find that scab varies much

in seriousness in different parts of the province. It is a constant pest to be reckoned with in the Coast and Lower Mainland sections of British Columbia, in Salmon Arm, the Upper Okanagan and the Kootenays. In the real Dry Belt it becomes negligible or entirely



Prof. J. W. Eastham, in charge of the Government Experiment Station, Vernon, B.C.

absent. At Vernon, for instance, it may become epidemic in certain seasons, and is generally sufficiently bad on susceptible varieties to make spraying desirable. From Summerland south to the Similkameen I have never found it even on the McIntosh, although I have been informed that occasional spots are seen. Owing to the different climatic conditions prevailing at different points in British Columbia, a series of experiments was undertaken by the Department three years ago at certain points to determine what practical differences in treatment are necessary or desirable under different conditions. Most of the recommendations I have to make are based on the two years' results of this work now available. This is, of course, not long enough to give us material for any final statement, and unfortunately we have not got very good data regard-

ing rainfall, sunshine, etc., by which to fully interpret our results. Still, we have material from which to draw certain conclusions.

We have seen that the spread of the disease depends on surface moisture. Rainfall and climate we cannot control, but there are certain things which we can do to hasten the drying off of surplus moisture. Selection of an orchard site with good air drainage, pruning to admit light and air, and thinning of the fruit are all valuable. There is also considerable difference in susceptibility in different varieties, McIntosh and Snow are about the worst, whilst Ontario and Blenheim Orange have shown a certain amount of resistance. Ploughing under the old leaves before the buds break in spring, if practicable, will prevent much infection. When all has been done, however, our main defence against the disease is still to be found in timely and thorough spraying. The important questions are, "How often do we need to spray?" "What is the best material, and the best strength at which to use it?"

### SPRAYING NECESSARY.

Since the development of scab is dependent on moisture, it follows that the number of sprayings will vary with the locality and the season. It must be emphasized that dormant spraying, that is, before the buds break, is practically useless against scab whatever value it may have otherwise, since the early infection comes from the ground.

The two most important sprays are the "pink," given when the blossoms begin to show color, and the "calyx," given when the petals have just fallen. The former protects the flower stalks, which are liable to be attacked by the fungus so that the flowers fall off instead of setting, whilst the latter protects the very young fruit at a time when a scab infection would result in serious stunting and malformation. At Creston and Vernon last year these two sprayings alone gave practically clean fruit. Scab, however, was not bad, the check trees at Vernon only having 33% of scabby fruit. Where scab is at all bad we have found a spray given ten to fourteen days

\* A paper read at the Convention of the Western Canada Irrigation Association, held at Nelson, B.C.





Harvesting Alexander apples at Macdonald College, Que.

later very desirable, these three forming what we may term commercial sprayings. A spraying given at this time has been much more effective than one given three to four weeks after blossoming. At Salmon Arm, however, during the two last seasons, one has been about as effective as the other. The weather, however, has been exceptional in giving a wetter July and a drier June than usual. In a very wet season no doubt both sprays might be necessary, but in the past two years the later spray has not usually been worth while. Sprays later than these do not seem to be necessary.

#### A SEMI-DORMANT SPRAY.

In recent years there has come into use what is known as a semi-dormant spray given when the opening leaves are about the size of a ten cent piece. When the weather continues cold and wet at the time when the buds are unfolding, the fungus may get such a footing on the foliage before the pink spray is due, that later sprayings do not control it. In such cases the semi-dormant spray is likely to give good results. In this connection it is interesting to note that in several of our experiments last season, where the semi-dormant spray was given and the pink omitted, the results in control were just as good as where no semi-dormant was given, but the pink was. In other words the semi-dormant replaced the pink satisfactorily. In some cases this would be a decided practical advantage. If aphids were found to be developing on the leaves at this stage, by combining the lime sulphur with the black leaf for the semi-dormant spray it would, in such a case, be possible to omit the pink spray, thus saving a spraying. This would only be safe procedure if the weather proved to be good and the blossoms came on rapidly between the semi-dormant and calyx spray. In one case last season where much wet weather supervened, the substitution of the semi-dormant for the pink spray resulted in 25% increase in total scab.

#### STRENGTH OF SOLUTION.

Most of our experimental work has been done with a strength of one gallon of concentrate testing 32½ Beaume to twenty-five gallons of water for the semi-dormant, thirty gallons for the pink, and thirty-five for later sprays. Last year at Vernon some trials were made with weaker solutions. A test with one to forty for the pink, and one to fifty for the calyx and the spray three weeks later, gave 99% clean fruit. At the same time I am not recommending these strengths for general use. As I have already said, check McIntosh trees at Vernon last year only showed about 33% infection. Moreover, the great difficulty is to secure thoroughness in spraying. Any falling behind in this regard would be more serious if the spray solution were weak. I believe, however, under most conditions, with thorough spraying, it would be sufficient to use one to thirty for the semi-dormant, one to thirty-five or forty for the pink, and one to forty for later sprays. This would mean considerable economy in lime sulphur.

In the earlier days of scab control Bordeaux Mixture was the material universally employed, and even to-day it has no superior in controlling the fungus. Unfortunately, it is liable to cause a serious russetting and consequent blemishing of the fruit. For this reason lime sulphur, since its introduction in comparatively recent years, has gradually and almost entirely superseded Bordeaux mixture against scab. In our tests last year at Salmon Arm three sprayings with Bordeaux mixture resulted in 53% of the apples being so badly russetted that the grade was lowered.

#### CAUSES APPLES TO DROP.

In the last couple of seasons certain work in the Maritime Provinces and particularly in the Annapolis Valley, has tended to show that a serious drop of apples may result from the use of lime sulphur even at weak strengths. It is stated that under the conditions there prevailing it is no uncommon thing for a man to spray all the apples off his tree with lime sulphur. Some of our own growers who are keeping in touch with what is being done elsewhere are now inquiring whether their poor crops in some instances may not be due to the same thing. Now I am sorry to say that our work does not permit of a final statement on the matter, since we had almost decided to discard Bordeaux from our tests at the time these experiments were inception. As a consequence we have a direct comparison between lime sulphur and Bordeaux mixture only at Salmon Arm. The question at issue is simply the set of fruit; the efficacy of Bordeaux as a fungicide being unquestioned. In this case with ten-year-old McIntosh trees unsprayed trees gave 3.3 boxes of fruit per tree, those sprayed three times with lime sulphur 8.5 boxes

and those sprayed with Bordeaux 8.9. This gives a very slight advantage in favor of Bordeaux mixture, but not more than might be due to accident. Taken in conjunction with the fact that 53% of the apples sprayed with Bordeaux mixture were, as previously mentioned, severely russetted, the advantage is entirely with the lime-sulphur.

At Nelson and Creston, whilst we have no comparison with Bordeaux mixture, we can say that there was no diminution of yield of any consequence between plots sprayed twice with lime sulphur and five times. The evidence then, as far as it goes, certainly does not point to any diminution of yield due to lime sulphur. In these cases also the yield was at least as good, and often several times greater than on the check plots.

The question of materials cannot of course be final, since new compounds are being brought out. Two of these, Soluble Sulphur and Atomic Sulphur, have been carefully tested since they would be very convenient to use. They have not, however, proved satisfactory. In two years' tests at Salmon Arm, where three spraying of Lime Sulphur gave 89% clean fruit, three sprayings of Atomic Sulphur, given at precisely the same times, gave only 46% clean, with a corresponding reduction for each spray substituted. So far as our work goes it indicates that lime sulphur is still, all things considered, the best spray in use.

### Protect Young Trees

Orchard owners are warned by the Department of Horticulture at the Ohio Experiment Station to provide protection for young fruit trees from rodents before the first snowfall, as field mice and rabbits may begin to do their damage near the opening of winter. Even in orchards where there is an abundance of vegetation it has been found that rabbits will leave the green forage to gnaw the bark off the fruit trees.

Horticulturists have found that field mice do not attack trees when the grass is completely hoed from the trunk on an 18-inch radius. Mice avoid tunneling in ground that is not covered with grass and make no passageways through exposed patches.

A protector extending around the trunk made of wire netting with a one-fourth inch mesh and twenty-four inches in height is effective in keeping woodchucks and rabbits from destroying young trees. This kind of a protector may be placed on trees planted during the past season and should be left on the tree for five years.

During the winter protect smooth bark trees from the sun on the south side of the tree, or expect injury there next spring from sunscald.



# The Fruit Tree Leaf-Roller \*

Prof. L. Caesar, Provincial Entomologist, Guelph, Ont.

IT is only during the last five or six years that the Fruit-tree Leaf-roller has been known as a dangerous pest in apple, pear or plum orchards in Ontario. It has evidently, however, been present in the province for many years, for otherwise the writer would not have been able the second year of the outbreak to find it here and there in small numbers in almost every fruit-growing district of the province.

Up to the present time only three bad outbreaks have been discovered, and these all occurred almost simultaneously about six years ago. One of these was in a ten-acre orchard in the county of Northumberland, another in a larger orchard in the county of Wentworth, and the other in a still larger orchard in the county of Norfolk. The history of the insect in each of these three orchards may prove of interest and possibly of some value.

The first two years in all three orchards much damage was done, and the owners estimated that from 20% to 60% of the fruit was ruined. In the third year the insect began to decrease in number in both the Northumberland and Wentworth orchards, and has now almost disappeared from them. In the Norfolk orchard there was also a decrease in the third year and comparatively little injury since until this year, when a large portion of the orchard is once more

severely attacked. All surrounding orchards in each of these localities have remained practically free from the pest. This shows clearly its remarkable tendency to localize itself and remain almost exclusively in its chosen abode.

The owners of the respective orchards endeavored on the writer's suggestion to control the insect by very heavy applications of arsenate of lead just before the blossoms opened and again immediately after they fell. After the second season it was seen that arsenicals would not control it, and following the experience of experimenters in the United States scalecide (a miscible oil) was used both in the Wentworth and Norfolk orchards. Fairly good results were obtained in both orchards, but as this mixture is costly it was used only one season in the Wentworth orchard and two seasons in the Norfolk one. It was then thought that natural agents would probably furnish the work of control and that the insect would gradually disappear. This proved true in the case of the Wentworth orchard just as it had done in the Northumberland, but failed in the Norfolk. It is interesting, therefore, to know that in one locality, even apart from any effective spray, natural foes,—parasites, disease and unfavorable weather—were able in a few years to remove or control a very dangerous pest, and that in another district they failed to do so even though aided by an application of one of

the most effective sprays known. The explanation probably lies in the fact that there is considerable difference in climate in winter, spring and autumn between Norfolk and Northumberland counties, and also to a lesser extent between Norfolk and Wentworth counties. Our studies in Norfolk showed that there were at least two species of dipterous parasites there and four or five species of hymenopterous parasites; so that the persistence of the Leaf-rollers there was not due to the absence of parasites, though cooler weather during the larval stages of the insect may have prevented the parasites from being so active as in the other orchards. This, however, is by no means certain.

## ANOTHER INSECT.

Lest fruit growers finding a few rolled leaves with greenish or yellowish green larvæ in them become alarmed and think that they are going to have an attack of this dangerous pest, we may mention that there is another very common Leaf-roller, known as the oblique-banded Leaf-roller which occurs almost every year in small numbers in almost every orchard. The larva of this species is not easily distinguished from its more dangerous relative and, therefore, may easily be mistaken for it. The adult moths, however, are easily distinguished.

The proper course for fruit growers to pursue is not to worry about the Fruit-tree Leaf-roller until it is known to be present in the orchard and to be doing considerable damage—enough damage to justify special measures. When this state of affairs exists spray the trees very

\* From THE CANADIAN ENTOMOLOGIST.



The Land and Agricultural Company's orchard at Kelowna, B.C., one of hundreds of fine orchards in the Okanagan Lake District.





A general view of the apple orchards at Macdonald College, Que., in which experiments have been conducted in the growing of cover crops, as described on this page by Prof. Bunting.

thoroughly with scalecide or some other good miscible oil a few days before the buds burst. This substance will kill all the eggs that it covers, but to insure that the egg masses are all covered means that the spray must be forced right through the tree to the farthest twigs and branches on the opposite side, otherwise many egg masses situated on the inner side of these twigs and small branches will not be hit.

The introduction of the new spray guns makes it a great deal easier to control these insects than it was a few years ago. It should be remembered that each barrel of scalecide should be diluted enough with water to make sixteen barrels of mixture for the orchard, and also that this substance is very effective against San Jose scale. In nearly every case the scalecide should be used two years in succession to insure full success.

## Orchard Cover Crops

Prof. T. G. Bunting, Macdonald College, Que.

**E**LEVEN varieties of cover crops, in addition to check plots on which weeds are allowed to grow, have been grown in one of the orchards of Macdonald College since its planting in 1907. This orchard has been intercropped with vegetables, the tree rows only being seeded to cover crops about the first week of July of each year; but during the last two years as the trees are larger and bearing well the whole area has been seeded to the various crops.

Of the legumes, red clover, crimson clover, hairy vetch, cow peas, and soya beans are grown and of these the first three are the most satisfactory from the standpoint of the trees and the harvesting of fruit. However, they are legumes and leave considerable quantities of nitrogen in addition to large quantities of humus in the soil, and cause a rather heavy, even rank growth of foliage and wood. Further, these crops are the most expensive in initial cost of seed, running as high as \$6.00 and up to \$12.00 an acre in the case of hairy vetch, depending somewhat on the rate of seeding.

Barley, oats, fall wheat and winter rye are grown in other parts of this orchard

and although satisfactory from the standpoint of protection and amount of humus and also reasonable in initial cost, they are not so satisfactory from the standpoint of harvesting the crop, as they make it very wet underfoot and difficult to gather windfalls. Winter rye and fall wheat have been found to be most satisfactory of this group.

### OTHER CROPS.

Rape and buckwheat are the other two crops grown in this block, and also very largely in the other orchards at the College, because they are comparatively cheap in initial cost and satisfactory for winter protection and in the amount of humus left behind. Rape is the cheapest of all cover crops used, not so much because of the low cost of seed, but on account of small amount, six pounds, per acre, required for seeding. The rape is cut with a mowing machine about the end of August, in advance of the harvest. By cutting it somewhat high a strong second growth develops and continues to grow until late in the fall or until the ground is frozen. By cutting in this way once and sometimes a second time

the difficulty of wetness underfoot and the harvesting of windfall apples is somewhat overcome.

In the check plots weeds are allowed to grow and this has the advantage of entailing no cost for seed and affords usually a fair protection. Where the orchard is under good cultivation and sufficient manures or fertilizers are used to maintain soil fertility this method may be found fairly satisfactory.

### USEFUL CROPS.

The clovers and vetches seem to be the ideal cover crop, from the standpoint of the orchard, but are very high in cost of seed. In addition, a fruit grower must bear in mind that they are leguminous crops adding nitrogen to the soil and there may be danger from their continuous use on some soils of stimulating too rank a wood and foliage growth at the expense of crop production and color in the fruit, and so must be carefully used. Wood ashes, potash and phosphoric acid fertilizers should be used with these leguminous cover crops.

Rape makes a fairly satisfactory orchard cover crop when cut early and allowed to grow again and affords the best of protection. One can be reasonably sure of getting a good stand of rape, whereas it is uncertain in a dry season with clovers and vetch.

## Clean up the Orchard

Mummied fruits in orchards left undisturbed, either on the trees or on the ground, give rise to an outbreak of brown rot in spring. Ploughing under affords only limited protection, since it safely buries all fungus material which spring ploughing will bring to the surface of the soil once more after successful hibernation. Prevention, as usual, is decidedly better than cure, and sanitary measures are just as important in field, garden or orchard as in stables and dwellings.

As soon as possible after the harvest of each crop—or better, after the growing season is over—a general clean-up is most essential. Where possible, all refuse should be collected; diseased or rotten fruits, leaves, stalks, haulms, etc., should be gathered and the whole destroyed by fire. Material that will not burn readily, such as is common on the fields after harvesting—roots, potatoes, etc.—should be buried in a pit. In orchards, where such measures are followed by the usual dormant sprays, the results will be most beneficial, and field and garden crops will also greatly benefit.

As soon as the frost cuts the foliage on the dahlia remove all but five or six inches, lift the plant out of the earth and let it dry in the sun for an hour or so, then put in a cool dry storage cellar. The tubers must not be dry enough to shrivel or moist enough to grow before spring.



# Winter Injury to Fruit Trees in Canada

W. T. Macoun, Dominion Horticulturist, Ottawa

**T**HE full effects of the severe winter of 1917-18 on the orchards of the provinces of Ontario and Quebec will not be known before next year. In the meantime, however, a preliminary account of what happened may be of some value.

Not since the winter of 1903-4 has there been such a cold winter as that of 1917-18, and it will be remembered how great were the losses among fruit trees in 1904; but, while during last winter there were not such long spells of extremely low temperature at Ottawa as during 1903-4, the losses among the hardier varieties of apples were much greater. Although there were fewer days when the temperature was between 20 and 30 below zero in 1917-18 than there were in 1903-4, the winters were very much alike in that the temperature rose above freezing on very few days, and there was little thawing for nearly four months. During the winter of 1903-4 the temperature was below zero on 58 different days at Ottawa, whilst last winter it was below zero on 57 days. The lowest the temperature went at Ottawa in 1903-4 was 30.2° F., the lowest it went in 1917-18 was 31° below. The character of the winter at Ottawa is given as an example of what occurred in other parts of Ontario and Quebec, the temperature being much lower in some places than they were at Ottawa.

In the bulletin called "The Apple in Canada," written by the writer, thirteen forms of frost injury are described, namely: (1) Root-killing, (2) Bark splitting, (3) Trunk splitting, (4) Sunscald, (5) Crotch injury, (6) Killing Back, (7) Black Heart, (8) Discoloration of sap wood, (9) Trunk or body injury, including killing of the branches, (10) Killing of dormant buds, (11) Winter killing of swollen buds, (12) Frost injury to flowers, (13) Russetting of fruit due to frost. The injury from the winter of 1917-18 was mainly trunk or body injury, including killing of the branches, although some of the other forms of injury were found also. In the writer's opinion, the reason why so many trees were killed is that, owing to the long continued cold weather without thaws or moist air, the trees steadily lost moisture throughout the winter, until at last they had lost too much to recover. The fact that trees lose moisture in winter has been proved by careful experiments. In an experiment conducted at the Central Experimental Farm by Dr. Frank T. Shutt, Dominion Chemist, in the winter of 1902-3, to determine the moisture content of apple twigs, it was found that during the

depth of winter there was a gradual loss of moisture.

At Ottawa the apple trees, in the writer's judgment, never went into winter in better condition than they did last winter. The foliage had been very good during the growing season; there was a good development of buds, and the trees ripened up well, so that the injury which occurred was not due to immature wood which is responsible for injury in some winters. Trees of some of the hardiest varieties of apples were killed at Ottawa, there being some losses among such varieties as Duchess of Oldenburg, Tetofsky and Antonovka, which had never been injured before during the thirty years in which they were planted. These trees, however, had been bearing heavily in past years and while in good health had made little growth in 1917, and were full of fruit spurs. In the writer's opinion they had almost a minimum amount of sap when winter came, and the continued loss of sap through the winter left them dry before spring. Native maples were killed in some parts of the province of Quebec. Is it any wonder that the so-called iron-clad apples were killed? In many instances the younger branches which had the most sap were able to throw out leaves, but as the supply of sap was cut off from below, most of these eventually dried up.

## MANY ORCHARDS RUINED.

As mentioned at the outset, the full effects of the past winter are not yet known, but it may be stated that many orchards in the provinces of Ontario and

Quebec have been virtually ruined, and the orchards of Vermont, New Hampshire and Maine suffered severely also. In Ontario peaches were much injured, while in the apple districts along Lake Ontario, the more tender varieties of apples were badly hurt, the Baldwin in particular suffering. The injury in eastern Ontario was not great in the St. Lawrence River Valley where only the hardier apples are planted commercially, but in the Ottawa Valley, on both the Ontario and Quebec sides of the river, the injury was very severe. There was considerable injury in the orchard at Macdonald College, but it was not nearly as great as at Ottawa. The writer has not visited La Trappe, Que., this summer and does not know the extent of the injury there. In the eastern townships there was much injury. At the Lennoxville Experimental Station where the temperature went below 40° F. below zero several times, there was much injury in the young orchards. At the Cap Rouge Station there was practically no injury to the apple trees, but the European plums and the pears were badly injured. At the Experimental Station at Ste. Anne de la Pocatiere, there was very little injury to apple trees, but the European plums were considerably injured, and the pears badly injured. At the Experimental Station at Fredericton, N.B., there was practically no injury to apples or plums, and in Nova Scotia and Prince Edward Island, no special injury was seen. In southern Manitoba bearing apple trees were badly injured, but the native plums proved hardy. In British Columbia there was no special injury in the great fruit districts, as the winter was not a severe one there.



This simple system of irrigation is used by Mr. D. Tregunna, of Bartonville. The water is pumped into the tank from a spring bed pond by a gasoline engine kept in the shed that is shown. Pipes run from the tank to the land that is irrigated.

\* A paper read at the recent summer meeting of the Quebec Pomological Society.





This very attractive exhibit of fruit was staged by the Dominion Fruit Division at the St. Catharines Horticultural Exhibition.

Returning to the orchard at the Experimental Farm, Ottawa, with which we are most familiar, it may be said that trees of many varieties of apples were either killed or badly injured. European plums were almost all killed, and the few Russian pears which had withstood previous hard winters were nearly all killed. It was noticed that the injury was greatest on the north side of the apple orchard, evidently where the trees were exposed to the dry cold winds. Haas trees at this side of the orchard, which had stood for thirty years, were killed, but the different varieties are scattered through the orchard and injury occurred all over. Some trees of McIntosh which had never been injured by winter at Ottawa before, were badly hurt, and a few trees are dead or will die. In previous winters the Scott Winter had shown itself to be one of the hardiest late keeping apples and had been planted here and there through the orchard. Nearly all the trees have died, although most of them developed small leaves at first. Some Wealthy trees were killed and even an odd Duchess of Oldenburg. A careful study has not yet been made of how the apple seedlings originated at Ottawa came through, but it may be said that some of the best of the summer and fall apples have proved hardy, while most of the bearing trees of the winter varieties were killed, or badly injured. The Elmer apple, however, which is considered one of the best of the winter sorts, was not badly hurt. A fuller report on these new varieties will be made later.

#### SOME HARDY VARIETIES

A few commercial fall varieties which have proved hardy are the Dudley, or North Star, which is in season just before or at the time Wealthy is in season, and is much grown in New Brunswick; the Okabena, which is in season between Duchess and Wealthy, and is much

appreciated in Minnesota, where it is considered one of the hardiest apples; a Russian apple called Golden White; Winter Stripe, and Amtmann, which has yielded well at Ottawa in the past, and is a handsome September apple of fairly good quality.

While the great loss from last winter has been a hard blow to fruit growers in Quebec and Ontario, and will probably discourage many from re-planting, let those of us who keep our faith in fruit growing do what we can to encourage the continued planting of fruit trees, basing our recommendations on the experience of 1903-4 and 1917-18, and urging the planting of a fair proportion of the hardiest varieties.

#### Controlling San Jose Scale

The cause of most failures to control the San Jose scale properly, according to Prof. L. Caesar, of Guelph, Provincial Entomologist, is due to the failure of growers to attend to the work of spraying with sufficient thoroughness. Fruit growers, he states, should start spraying at the corner of the tree and should apply the spray from the ground to the top, taking care to reach the under side of the branches and to see that the spray goes right through the tree, reaching all the little branches. They should not move until everything on that side of the tree has been covered, when they should advance to the next corner and report the operations in the same way. Returning down the next row the other two corners of the same tree should be covered in a similar way. Only in this manner can a thorough covering of the trees be assured. Such spraying requires a little more material, but it pays a hundred fold.

Prof. Caesar likes the new spray guns, as they make it possible to regulate the sprays more satisfactorily. When spray-

ing the nozzle should be set to suit the size of the tree. It is a mistake to attempt to spray against the wind with a fine spray. The only way to fix the San Jose scale is to cover all the tree with the spray application. When this is done the scale can be controlled in all but the very worst orchards.

#### Destroy Insects Now

War gardeners will find it profitable to burn the remnants of old crops, together with weeds and filth along fence-rows so that injuries from insects and plant diseases may be lessened for next year, according to entomologists at the Ohio Experiment Station.

Insects hibernate in crop residues to a great extent but burning and clean culture will destroy a greater portion of the adult pests, including the potato stalk borer, asparagus beetle, squash weevil, cabbage louse, striped cucumber beetles, squash bugs, onion thrips, stalk borers and radish maggots.

During the fall months much of the rubbish may be piled for a week or so until it dries thoroughly, during the drying period it will serve as a trap, as many insects will seek shelter with the approach of colder weather. The vines gathered may also contain many hibernating insects, their immature stages or even eggs, which will be destroyed when the crop residues are burned.

Fungus diseases of potatoes, peas, celery, cucumbers, tomatoes, onions and melons generally live over to the next season on old plants and of course begin to multiply rapidly as soon as conditions are favorable. Burning and cleaning up will tend to prevent an early start at least of these organisms.

#### Planting in Double Rows

Mr. Philip Card, of Peterboro, has had success by planting carrots, beets, onions and radishes in double rows instead of single rows. The seed is planted in rows four inches apart with a space from sixteen inches to twenty-four inches between double rows.

Mr. Card uses twenty-four inches between his double rows of carrots so as to allow for the use of a horse cultivator. The double rows are weeded and thinned angle wise. It is Mr. Card's experience that he obtained better vegetables from this method than from any other he has tried. The two rows shade each other and are less affected by the sun than the single rows. In addition more vegetables can be planted and space be thus conserved.

I am well pleased with the Floral Edition of THE CANADIAN HORTICULTURIST, and do not wish to miss a number.—ALEX. A. HALL, Kenora, Ont.



# Storing Roots Vegetables and Fruit

Prof. D. H. Jones, Ontario Agricultural College, Guelph

**I**T is well known that foods not properly preserved will spoil. They will ferment, decay, putrify or become moldy. These changes are brought about by the development of bacteria, yeasts and molds on or in the food. If these micro-organisms can be prevented from growing on or in the food it will not spoil. Therefore the question of food preservation resolves itself into the problem of preventing these bacteria, yeasts and molds from growing or multiplying on or in the foods. This is done in various ways according to the nature of the food to be preserved.

In the storing of roots, tubers, cabbage and celery it is a comparatively simple matter if the materials are sound to begin with. Although the decay-producing bacteria, yeast and molds are always on these they cannot do any injury until the materials are first damaged in some way as by bruising, heating or freezing. After such injury has been done, the decay bacteria and molds are able to feed on the damaged tissue and as a result of this action decay or rot takes place and gradually spreads until all is spoiled. Therefore in storing roots, tubers, cabbage or celery it is necessary:—

First, to have only sound, healthy specimens;

Second, to handle with care so as not to bruise or otherwise damage the tissues;

Third, to store in a cool, well ventilated place where there will be no dan-

ger of either over-heating or freezing.

Overheating or freezing will usually kill the living tissue of which the roots are composed, after which they will readily decay as a result of the rapid multiplication of bacteria and molds in the dead tissue.

## Keeping Vegetables.

In the preservation of such vegetables as green peas, beans, asparagus and green corn, different measures are necessary. These are green and juicy, and if stored in the fresh condition they will either wilt or ferment and rot. This fermentation and rotting is due to the development in the mass of the bacteria which are present on the vegetables. There will be sufficient moisture present in the mass to enable the bacteria to multiply and feed on the material and thus induce the rot. So in order to preserve such vegetables in the fresh condition the bacteria present have to be all killed and all other bacteria prevented from getting on the material until it is to be used. In order to accomplish this the process of canning is resorted to. To get satisfactory results from canning vegetables it is necessary to have:—

First—Good sound, healthy vegetables;

Second—Good clean sealers with tight-fitting tops and good rubbers;

Third—Wash the vegetables and fill into the sealers;

Fourth—Cover with water salted to taste;

Fifth—Put on the tops and leave slightly loose;

Sixth—Place sealers in a steamer or boiler half filled with cold water and heat to the boiling point for half an hour;

Seventh—Remove sealers from boiler or steamer and tighten down the tops;

Eighth—After 24 hours loosen the tops and return to the boiler or steamer and give another half hour's boiling;

Ninth—Repeat this process after another 24 hours. Then tighten down the tops and place away.

This treatment should destroy all micro-organisms present, and if the top is hermetically sealed no others can get in until it is opened.

Another method of sterilizing is to give one boiling to the filled sealers for three-quarter hours. This, however, cannot be depended on to give as satisfactory results as the above.

Another method is to heat in steam under 15 lbs. pressure for thirty minutes. This is the commercial way, for which special strong steamers (autoclaves) are necessary.

## The Drying Process.

Another method of preserving vegetables is by drying them in special ovens. This drying process extracts sufficient moisture from the vegetables to prevent the bacteria present from having the power to multiply unless the materials should get moist before being used. If sufficient moisture is not extracted or should the dried materials get moist during storage, then decay or rot will rapidly develop.

In the storing of such fruits as apples and pears, which can be stored without canning, we have to prevent the development of molds and yeasts. These are always present on the surface of the fruit. Bacteria do not damage fruits as they do vegetables or meats on account of the sugar and acid nature of the fruits, which is not satisfactory for bacterial development but is just what is needed for molds and yeasts. But even molds and yeasts will not develop on sound apples and pears that are properly stored. If, however, the fruit is damaged in the picking, handling or packing, then the bruised spots enable the mold spores or yeast cells that are on the surface to germinate and grow and multiply, and when once they get a start they will continue to spread even through the sound, healthy tissue and from fruit to fruit until the whole pack may be spoiled. Therefore, in the storing of such fruits as apples and pears, it is essential—

First—To have only sound specimens.

Second—To pack carefully without bruising;

Third—To store in a cool, well ventilated place where they will neither be overheated or frozen.



Canadian war-time gardeners, near Toronto, gathering a worth-while crop of carrots for winter storage.



## The Canadian Horticulturist

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**FLORAL EDITION**—Devoted to the interests of amateur fruit, flower and vegetable growers.

**APICULTURAL EDITION**—This edition is known as The Canadian Horticulturist and Beekeeper, and is devoted to the interests of the beekeepers of Canada—official organ of the Ontario, Manitoba and New Brunswick Beekeepers' Associations.

### SUBSCRIPTION RATES.

The subscription rates of the Fruit and Floral Editions are as follows—One year, 50c; three years, \$1.00; to Societies and Associations, 40c; three new subscriptions or two new and one renewal for \$1.00.

The subscription rates of The Canadian Horticulturist and Beekeeper are—One year, \$1.00; three years, \$2.00.

Add extra for postage to foreign subscriptions 50c, and for subscriptions to United States and the City of Toronto, 25c per year.

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Communications should be addressed

THE CANADIAN HORTICULTURIST,  
Peterboro, Ontario.

## Brightening Prospects

War conditions have affected the fruit industry in Canada more adversely probably, than any other of our leading industries. The rapid spread of fungus diseases and insect pests in thousands of orchards that have had to be neglected on account of labor shortage have made great inroads in the fruit producing orchards of Ontario. To this must be added the widespread destruction of fruit bearing trees this year following the severe weather that prevailed last winter. The disorganized condition of our fruit markets during the past several years because of the fruit embargo, together with the unusually poor fruit yields for some years back, has discouraged the setting out or new plantations. The result is that not for many years has the fruit industry in Ontario been in such an unfortunate position as it occupies to-day. In the other main fruit producing areas of the Dominion somewhat similar conditions prevail.

Now that there is a prospect of an early termination of the war, it is an opportune time for leaders in the fruit industry to get together and plan for a forward move. During the war vessels have been fully occu-

pled carrying fruit supplies from America to Europe. Following the cessation of hostilities, this movement will be completely reversed as far as the transportation of troops and war supplies is concerned. Thus we may expect an early termination of the fruit embargo, possibly in time to affect some of America's crop of apples this year. This will tend to create greater confidence in future marketing conditions.

With the return of the men from overseas labor conditions should soon improve. While the need for heavy taxes will still exist, it is reasonable to expect that some at least of the special war taxes, such as the 7½% increase in the tariff, will be removed, and the cost of supplies be correspondingly reduced. This is a time, therefore, when fruit growers should be discussing what assistance may reasonably be expected from the Dominion and Provincial Governments, and when plans to press for it should be under way. Those engaged in manufacturing and other industries have been looking after their interests in this direction for some time. It is time, therefore, that our fruit growers got busy.

## The New Commissioner

Hon. T. A. Crerar, Dominion Minister of Agriculture, lost little time in the appointment of a new fruit commissioner. The choice has fallen upon Mr. C. W. Baxter, who for a number of years has held responsible positions in connection with the Fruit Division, both in western Canada, where he became familiar with western marketing conditions and to some extent with producing conditions as well, and of late years in the office at Ottawa, where he has been brought into close contact with the administrative features of the department's work. Over a year ago Mr. Baxter was called upon by the Food Controller to assist in carrying out the various recommendations made by the Fruit and Vegetable Committee of the Food Control Board. His services were so satisfactory they led to his being appointed some months ago to the position of chief of the Enforcement Section of the Board.

While some growers would have liked to see the appointment given to a man with a greater practical experience in fruit production, Mr. Baxter has made so many friends both east and west because of his capable management of the responsible work he has had in charge for the Department during the past few years, his selection will not be seriously questioned in any quarter and meets with the hearty approval of many leaders in the fruit industry. The Quebec Pomological Society at its September meeting recommended Mr. Baxter for the position and we understand that leading fruit growers in British Columbia endorsed it also. Mr. Baxter will have a great opportunity to serve the fruit industry of Canada, and we have every confidence that he will do so in an eminently satisfactory manner.

## Municipal Opportunities

The Food Controller is authority for the statement, that even should the war come to the expected sudden termination, the need for increased food production and food conservation will continue to be imperative for a year at least and probably longer. So much of the preparations for each season's crops have to be made the fall before, and so great has been the depletion in the breeding stock of the warring countries, it will take over a year, at least, to get crop

production in Europe back to normal, while the breeding stock of Europe cannot be fully replaced, with the possible exception of hogs, for many years.

All this means that next year the need for war-gardens in Canada will be as great as ever. Past experience has shown that if the full results desired are to be achieved, much of the work undertaken should be started the fall before. As many horticultural societies in Ontario will hold their annual meetings, as well as their provincial convention, within the next few weeks these gatherings will afford a fitting opportunity to discuss methods of improving on past results.

The suggestion has been made in different quarters that arrangements might be made for the starting of municipal hot beds. Were horticultural societies to start such a movement it would receive hearty endorsement. Mr. H. J. Moore, of Queen Victoria Park, Niagara Falls, Ont., suggests that a public appeal for help would lead to manure being donated free of cost and that lumber merchants in all probability would be willing to donate the lumber. Local horticultural societies could donate the seed and the municipality the funds needed to handle the work. A hot bed twenty feet by five feet would furnish enough plants for twenty-five city gardens of one-eighth of an acre each.

A real problem in some cities in the fall both last year and this, was furnished by the need for suitable storage facilities for the vegetables produced in many war gardens. Heavy losses have resulted from lack of these facilities. The suggestion has been made in Winnipeg that municipal store houses be provided. These could be constructed inexpensively and slight charges be made for their use. While there probably would be difficulties in the proper administration of such storehouses the suggestion has much to commend it.

## Be Not Fearful

Fear is one of our greatest enemies. Few people are entirely free from it. It paralyzes our will power, impairs our efficiency, destroys our peace of mind, darkens the sunshine and destroys our happiness. The wealthy are afraid that they may lose their health or their investments, middleclass people that they may get into debt, the poor man that he may lose his position. The farmer fears that his crops may fail or that his stock may die, the business man, that he may not be able to meet his fast maturing notes. Recently tens of thousands of people have feared that they would fall victims to the influenza and some have realized that they were not ready to die. To-day many are dreading what may occur when peace is declared, war industries close, and social and commercial conditions undergo the great changes that we have been warned that we may expect.

Teachers of "New Thought" tell us not to give way to our fears. Instead we must quiet ourselves, force our mind to think of pleasant, inspiring things and thus rise above our gloomy apprehensions and triumph over them. But that is just what we have only too often found out that we are incapable of doing. Our fears are our masters, not our servants. They refuse to obey our weak commands. But! there is a way of deliverance. Fear comes to us when we are not in right relationship to God. It grows out of our conscious inefficiency. Therefore we need a power greater than ourselves to lean upon. This God offers to



provide. He is greater than our fears and has promised to "Keep him in perfect peace whose mind is stayed on Him." When we learn to yield ourselves to Him each day and to rest in His perfect and infinite power, we learn how well founded was the assurance of Paul when he said: "God is able to make all grace abound toward you; that ye always having all sufficiency in all things may abound to every good work."

## Fertilizer Supplies

The general expectation that the great war will soon be terminated with the consequent possibility of reductions in the Canadian tariff will probably lead most fruit and vegetable growers to feel cautious about purchasing fertilizers at this time. Nevertheless it is desirable that marketing conditions shall be watched carefully with the object of purchasing next year's fertilizer supplies at the earliest possible moment. This year many growers, who delayed placing their orders until within a few weeks before the season opened, found difficulty in obtaining the necessary supplies because of the shortage of material and unsatisfactory condition of transportation facilities. Even the cessation of the war is not likely to effect much of an improvement in these matters. This is what makes it desirable that orders should be placed at the very earliest moment that conditions justify.

Owing to the increase in transportation charges co-operative purchasing in large quantities will be more important this year than ever before. Where this is followed considerable savings may usually be effected by buying fertilizer ingredients such as nitrate of soda, sulphate of ammonia, superphosphate and basic slag, rather than buying ready mixed fertilizers. Fruit growers desiring information on the mixing of fertilizers may obtain it free of cost at all times through the Division of Chemistry, Central Experimental Farm, Ottawa. Such facilities for obtaining accurate information are not consulted as freely as the value of their services warrant.

Severe illness has necessitated the resignation of Mr. W. E. Scott as Deputy Minister of Agriculture for British Columbia, a position he has filled for a considerable number of years with energy and ability. Being especially interested in horticulture, in consequence of which he was a close reader of *The Canadian Horticulturist*, Mr. Scott took advantage of every opportunity to promote the fruit and vegetable industry of British Columbia. The splendid reputation that province holds to day in fruit matters is due very considerably to the loyal support it has received from Mr. Scott as Deputy Minister of Agriculture. Fruit growers appreciate these services and regret that ill health has made it necessary for him to relinquish his important duties.

The annual convention of the Entomological Society of Ontario, which was to have been held during November, was postponed on account of the influenza epidemic until December 4th and 5th, at Guelph. There will be several addresses of interest to fruit growers.

The Victory Loan is a challenge to the men and women, and children too, to all the people of Canada, for bonds speak louder than words.

## : SOCIETY NOTES :

### Floral Displays by Horticultural Societies

A FEATURE of the horticultural display at the recent Western Exhibition held in London, Ont., were two grand exhibits staged by the London and St. Thomas Horticultural Societies. The London Horticultural Society for the first time made a showing of seasonable bloom, in the class provided by the Fair Board, for best display by a horticultural society or institute, and their efforts met with favor by all interested. The space occupied by the exhibit was 5 ft. by 30 ft. of table space, and 35 ft. by 5 ft. of wall.

The wall was finished in fibre board of buff color panelled in brown, which made a fitting neutral background for the many colors shown.

A novel arrangement was secured by the use of oval mirrors, draped with ornamental

Gladiolus were shown in variety with War and Peace close together, making a delightful contrast at the back of the rest of the display. Other varieties included some of the best of Dieners, Kunderds and Groffs, with the lighter colors in front.

Asters of the size of "mums," with long stems and of quality fit to win anywhere in open classes, were shown ranging in color from white, through the light shell pinks and pale mauves, up to the deep pink, crimsons and purples, and were admired by all.

Petunias, cut with plenty of foliage, made a grand showing in jardinières in front, mixed with small vases containing annuals and novelties. Pansies of grand color and quality, phlox drummonds, perennial phlox, galardia, verbenias, zinnas, marigolds, snapdragon, sweet sultan, red sunflowers, helian-

Our men have gone across to protect us; now let's come across to protect them.—Buy Victory Bonds.

grasses, and with wire holders which held vases out at an angle from the wall. The shelf which can be seen at the top was used for the display of purple asters in vases standing among the bloom of hydrangea panicula, this giving a purple and white finish to the top of the exhibit. The color scheme of the wall vases was carried out in purple and white asters with grasses. On the table, large urns of *Boltonia Asteroides* and *Helenium* in the corners sloped up from the rest of the exhibit showed off to good advantage. The centre of the display, which was elevated, was composed of red rambler roses and *lilium rubrum* mixed with white ramblers, then surrounded with the exquisite bloom of well grown hybrid tea and perpetual roses. Among others: *Ophelia*, *Sunburst*, *Killarney*, *Hoosier Beauty*, *Madame Herriott*, *Lady Pirie*, *Constance*, *Hugh Dickson*, *Mrs. J. Laing*, and *Druschki*.

thus, and calcicum and other bloom were also shown, adding to the educational feature of the show.

All flowers shown were contributed by local members and friends and the arrangement was looked after by the floral committee.

The display, as a whole, was the centre of attraction in the horticultural building, and at times the crowd of interested spectators blocked the aisles.

As a means of creating a greater interest in the love and growing of flowers, the showing of good bloom of the seasonable flowers at fall fairs is highly commended to other societies, as more people see the results than can be shown in any other way. As at least 50,000 people were in attendance at the London Exhibition the results cannot be over estimated.

The winning of the first prize and diploma (Continued on page 268.)



A rose dance given to commemorate the 25th anniversary of the Ottawa Horticultural Society.



## New Varieties of Peaches

SOME time since The Canadian Horticulturist was requested to publish as authentic the descriptions of some of the new varieties of peaches, compiled by Chas. E. Plumb, based on the descriptions given in the well known book, "Peaches of New York." Before doing so we submitted the list to Mr. E. F. Palmer, director of the Horticultural Experiment Station, Vineland, Ont. The original list, with Mr. Palmer's comments on it, is here published. The varieties, as compiled by Mr. Plumb, were as follows:

**Arp Beauty:**—(Same as June Elberta) semi-cling. A good early variety, one month earlier than Elberta. Is somewhat subject to brown rot. Yellow shaded with red. Of good quality.

**Golden Swan:**—The greatest peach for the Canadian growers. The first yellow flesh real good peach on the market. Is full free stone when thoroughly ripe. Ripens with Triumph and commands fancy prices. Off the market before Yellow St. John comes on. Medium size, mottled with red. Fine quality.

**J. H. Hale:**—The largest peach known. A much better commercial sort than the Elberta, and while it may not drive the latter out of the market, it will divide honors with it. Is of the Elberta type, but flesh is firmer and heavier; will ship better and keep longer than the Elberta. Colored much the same, but is entirely round. Ripens a few days earlier than the Elberta.

**Mayflower:**—A beautiful peach—red all over. The very earliest peach known. Semi-cling. Splendid quality. Bears second year from planting. Heavy crops right from the start.

**Rochester:**—Is very popular in New York State, but is of the Crawford type and will not do well on all soils. Is from a few days to two weeks earlier than Early Crawford. A beautiful freestone, yellow flesh peach,

well covered with red. Fine quality.

On the foregoing, Mr. Palmer has commented as follows:

Taking the varieties in order, the description of Arp Beauty is more or less correct, except that the real Arp Beauty and the real June Elberta are distinct varieties, though with some nurserymen the one is sold as the other, but incorrectly so. With us also, the Arp Beauty is a semi-free stone and not a semi-cling, though "Peaches of New York" by Hedrick, notes it as being semi-cling. However, "Peaches of New York" is unfortunately, quite frequently in error.

"Golden Swan. I cannot agree with the first statement. 'The greatest peach for the Canadian grower.' Also the statement, 'is full free stone when thoroughly ripe' is confusing, and possibly misleading, in as much as though it may be free stone when 'thoroughly ripe,' yet while in proper state for shipment it is most certainly a semi-cling. Otherwise the description is O. K.

"J. H. Hale. The description, so far as my knowledge goes, is correct. However, I would make this comment, that if it is a much better commercial variety than the Elberta, it would most certainly drive the Elberta off the market. The description states that it is a better commercial variety than the Elberta, but that it will only divide honors with the Elberta. The description is inconsistent.

"Mayflower. The description is correct with the exception of quality and season. There is one earlier variety that I know of, that is, the Red Bird Cling. This, however is a very poor quality peach—like rubber! Also its quality is fair only, being very watery. Of course, it tastes good, being so early. I might also state that it is subject to brown rot and the stones split badly, about three-quarters of the fruit usually being affected in this way."

## The Manufacture of Cider

Prof. D. H. Jones, Ontario Agricultural College, Guelph.

Sweet cider is unfermented apple juice and hard cider is fermented apple juice. To get the juice the apples are either crushed or ground in a cider mill and the juice expressed from the pulp. The fermentation of apple juice or any other fruit juice is brought about by the development in it of yeast. Yeast cells are microscopic plants invisible to the naked eye and are always present on the surface of fruit. When the fruit is crushed to get the juice many of these yeast cells get into the juice and if these are not destroyed they will induce fermentation. Consequently in the manufacture of sweet cider we must destroy the yeast cells that are present and prevent others from getting in. The surest way of doing this is to pasteurize the juice immediately after it is obtained from the fruit and store away in well sealed containers. In the case of cider the pasteurization process means heating the juice to 170 degrees F. for ten minutes and then filling into containers that have been scalded and can be tightly corked. Care should be taken not to let the temperature get above 170 degrees F. during pasteurization or the character of the juice will be injured. The juice is then stored away at a low temperature to allow it to clear.

Hard cider is produced by allowing the fresh apple juice to ferment in the cask. The fermentation is naturally induced by the activities of the yeast cells that get into the juice from the surface of the apples. As, however, there are various kinds of yeast cells and also many mold spores liable to be on the fruit which may injure the quality of the cider spoiling the flavor, it is a good plan to control the fermentation either by first pasteurizing the juice and then adding a good yeast or simply by adding a good yeast to the raw juice as soon as obtained from the apples. The addition of this good yeast will hasten the desired fermentation and check the mold development. The best temperature for fermentation is 75 degrees F.

Are you doing what you can to increase the circulation of The Canadian Horticulturist? Our present low subscription rates are given in the expectation that they will result in a material increase in our circulation. We are constantly receiving letters from our readers expressing their appreciation of the benefits they have derived through reading The Canadian Horticulturist. There are many people not now receiving The Canadian Horticulturist who would be glad to do so were its merits drawn to their attention. This affords our present subscribers an opportunity to benefit both such people as well as us and thereby to promote the cause of horticulture.

There has been considerable rivalry in the city markets of the Prairies this fall, as usual between boxes of British Columbia and Washington State apples. Leading contenders for honors have been the Skookum apples from Washington and the O. K. Brand from British Columbia. Both brands were featured by beautiful colored lithographs on the end of the boxes.

The latest edition of "British Columbia Fruit, Its Qualities and Uses," a little booklet issued by the British Columbia Fruit Growers' Association, is as usual very attractively printed. It contains 225 recipes for fruit.

## Quebec Fruit Growers Discuss Their Problems

MEMBERS of the Quebec Pomological Society held an interesting two-days session near Berthierville, Que., during September. The losses in orchards that took place this year as a result of the unusual cold weather that prevailed last winter, and which resulted in the winter-killing of many trees, were a cause of considerable discussion. The discussion grew out of a paper by Mr. W. T. Macoun, Dominion Horticulturist, which is published in full in this issue. The secretary, Mr. Peter Reid, reported that root killing was general in Chateauguay, although the trunk and bark of the trees showed little or no damage. The Alexander variety was least affected, followed by the Duchess and Wealthy. The chief losses were sustained among Ben Davis, Gano, Fameuse, Pewaukee and the St. Lawrence varieties. At Oka and St. Joseph du Lac, McIntosh trees were badly killed.

Along the Lower St. Lawrence, according to Mr. J. C. Chappis, apples were not as badly affected as plums. Last winter's destruction was the greatest since the winter of 1895-96.

The results of experiments to determine the comparative value of dust versus liquid sprays in apple orchards, were given by

Mr. C. E. Petch, Field Officer of the Entomological Branch, Office. The experiments had been conducted at Hemmingford, forty-five trees being used in each test. The tests indicated that the cost of dusting on the whole was less than the application of liquid sprays, owing to the difference in time required in favor of the dust sprays. The cost of the materials used in the liquid sprays was less than the cost of the dusting material.

A resolution was passed petitioning the Dominion Government to pass legislation requiring all peddlers and dealers in nursery stock to be licensed and that all nursery stock, sold by dealers should be identified by permanent labels bearing the name of the vendors and the name and grade of the trees. Another resolution advocated the appointment of Mr. Baxter as Dominion Fruit Commissioner.

Mr. F. H. Grindley, of the Dominion Fruit Division, stated that because of the unsettled marketing conditions and poor fruit crops many orchards of late have been badly neglected, with the result that the position of the fruit industry is already being seriously affected. The new regulations governing the marketing of fruit and potatoes were explained by Mr. Grindley.



## Annapolis Valley Notes

Eunice Buchanan.

**O**UR first fall of damp snow came on October 18th, leaving the ground white. At this date some orchardists had finished picking the fruit, while others were only half through. The forest leaves were beginning to fall, but the apple trees were mostly green.

There is a great shortage of apple barrels; at first they sold for thirty cents, but now they are difficult to get at fifty. Staves are scarce, and much sickness has left the coopers short of men. By using bags for potatoes, culling out poor fruit, and putting some in bins for a time, there may be enough barrels in the end. Fruit sent to the evaporators will also ease the situation. With regard to markets, the demand is slacker, and buyers are writing to see how things shape.

Men are very scarce. Wages are about \$2.00 a day with board, and \$2.50 to \$3.00 without board. Girls receive \$1.50 to \$2.00, the latter price being paid to packers, without board. On the west side of the bog which divides Aylesford from Berwick, prices for labor and other things are generally cheaper.

The potato harvest was hindered by a succession of rainy days. The crop has been abundant, but in some sections much rot is prevalent. Shipments are going to Cuba, but the submarines have made shipping difficult. The damp weather has produced an abundance of slugs, and the fall web worms have been unusually destructive.

## A Big Fruit Land Deal

An important sale of fruit land took place recently when Mr. Ralph E. Burnaby, of Jefferson, Ont., purchased the property of the Ontario Fruit Lands, Limited, comprising 640 acres in Norfolk County, adjoining the town of Simcoe. There are some 38,000 apple trees on this property, which is located all in one block. This company was organized some ten years ago. Included in the property is 100 acres of land, which some six years ago were purchased by the company from Mr. J. E. Johnston, the well known fruit grower. At that time Mr. Johnston had put this land into such a highly productive condition that his orchard was visited by large numbers of fruit growers from all over the country. On the property purchased by Mr. Burnaby, there are seven complete sets of farm buildings, besides six cottages for farm help. Mr. Burnaby is the president of the United Farmers' Co-Operative Co., Ltd.

Mr. Burnaby has some twenty-six horses on the farm in addition to a Cleveland tractor. The latter, he states, has been doing fine work. It is a 24-horse-power machine. Recently it has been ploughing as much as eight acres a day. The property adjoins the Canadian Pacific Railway station and is within two miles of the Grand Trunk station. Mr. Burnaby has appointed Mr. G. C. L. Carpenter, B.S.A., of Grimsby, as manager of this farm.

## Save Your Wood Ashes

The experience of many generations of farmers and gardeners has proven the high value of unleached wood ashes as a fertilizer, especially for clover, corn, farm roots, vegetables and fruit crops generally. Wood ashes contain no nitrogen and supply no humus, but as far as mineral plant food is concerned there is probably no compounded

mineral fertilizer on the market that is more effective and more lasting. They furnish potash, lime and phosphoric acid in the very best form and combinations, thereby supplying the mineral plant food required by our crops.

According to analyses made by the Division of Chemistry, Experimental Farms, unleached hardwood ashes, free from sand, etc., will contain between five and six per cent of potash, about two per cent of phosphoric acid and from 20 to 30 per cent of lime. Before the war Germany supplied all the potash used for fertilizing purposes; since that supply has been cut off, potash has tremendously increased in price so that now it is worth almost ten times what it was in the early part of 1914, and as a consequence it has practically disappeared from commercial fertilizers. The potash in 100 lbs. of good quality wood ashes is now worth from \$1.00 to \$1.50.

Owing to the scarcity and high price of coal, people will be burning more wood this winter than has been customary for many years. We counsel them to save carefully the ashes from their stoves, storing them in a dry place protected from the rain. Leached ashes contain very little potash, for this element is readily soluble in water.

The soils most benefited by wood-ashes are light sandy and gravelly loams, and mucks and peaty soils. They are also especially valuable for sour soils deficient in lime. The application may be from 600 to 2,000 pounds per acre, preferably broadcasted in the spring on the prepared land before seeding, and harrowed in.

## Successful Experiments

The Canadian Horticulturist has been informed that Professor Caesar, Ontario Provincial Entomologist, and Mr. W. A. Ross, of the Dominion Entomological Branch, have completed their joint study of the Apple Maggot or Railroad Worm, and have now a simple, well-tested, very practical and inexpensive method of control to present to fruit growers. The result of their studies will be given later in The Canadian Horticulturist and also in bulletin form.

Messrs. Gibson, Caesar and Brittain have each been working separately during the last season on the Root Maggot of Cabbage. Good progress, we understand, has been made and vegetable growers will profit from the joint knowledge gained by these investigators.

Professor Caesar has been studying the Blackberry Leaf-Miner in the Burlington district during the past two seasons, with the special object of discovering a method of control. All efforts so far to discover any practical method of combating the pest have failed. Fortunately, natural enemies of this pest, we are told, always come to the rescue and after a few years reduce its numbers until it ceases to be important.

Mr. W. A. Ross, of the Dominion Entomological Branch, has devoted at least two seasons to the study of Pear Psylla, and as a result of his work is able to recommend methods of spraying which have given excellent results in his experiments.

Messrs. Kidd, Caesar and Ross have carried out, for the most part independently, a series of experiments on dusting and spraying apple orchards, with the object of determining the value of different spray mixtures and of dusting compared with spraying.

Victory Loan—Did you ever measure and weigh these two words?

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The following beekeepers will be able to supply Bees and Queens in any quantity for the season of 1919. Order Early.

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## PRACTICAL QUEEN REARING

is the title of the new bee book, cloth bound, 110 pages, finely illustrated, which has just been written by Mr. Frank C. Pellett, former State Apiarist of Iowa and well known bee-keeping writer.

For many years there has been a demand for a book which would give in concise form the many different methods of queen rearing, as the Doolittle, Pratt, Alley, Miller, Dines and others with variations as practised by the large queen breeders.

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AMERICAN BEE JOURNAL  
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## Apple Marketing Blunders

J. A. Grant, B.C. Fruit Markets Commissioner, Calgary.

We constantly find growers and shippers of fruit shipping or trying to sell f.o.b. shipping point boxes of apples that are unseasonable, thereby injuring their own sales and that of others on seasonable varieties.

In one window here we noticed Wealthy, McIntosh Red, Jeffries, Gravensteins, Cox Orange, Winter Bananas, Wagner, Baldwin and Spies all offered for sale. The casual buyer does not know that they are of different seasons and keeping qualities, so he buys with his eye, usually preferring the bright colors. The salesman may lead the buyer, if he is well versed in the business, but unfortunately the reverse is often the case.

Another big blunder is to have too many varieties to offer. The trade calls for a few varieties in each season. When offering car lots they demand straight cars of but few well-known varieties, and such cars usually command top prices. Unpopular and little known varieties are never wanted in straight car lots but are usually sandwiched in a car lot on which the buyer demands a big proportion to be of well known and specified varieties. We often get the most ridiculous assortments sent to us, asking us to help place them, all of which goes to show that the average grower is no salesman.

Recently we were asked to seek a purchaser for five cars of Salomes. This is a practically unknown variety, and should be introduced in mixed cars in small quantities, or sent on consignment to sell on their merits. We doubt if there is a single jobber on the prairies that would willingly purchase a whole car of Salomes or any other variety their customers do not know. Our advice to orchardists that have the misfortune to have too many varieties growing and thriving is to top work a good sized block of them into a variety that is known to sell readily and is known to do its best in their district.

## Potato Spraying Results

G. E. Sanders, Annapolis Royal, N. S.

Last spring several letters to the press were written from the Entomological Laboratory at Annapolis Royal urging the spraying of potatoes. Results quoted showed an average increase in yield, due to spraying, from 90 to 100 bushels per acre.

In many ways the season of 1918 was most unusual. The potato beetles were not present in injurious numbers in many localities. The late blight, the one that is most destructive and at the same time the most easily controlled, did not appear until much later than usual and then in a comparatively few fields. Early blight, which is less destructive than late blight and which is very difficult to control, was unusually abundant. In view of these circumstances the value of potato spraying was probably lower in 1918 than in any of the previous seven seasons in Nova Scotia. In spite of this most remarkable differences are showing in the yield of sprayed and unsprayed plots in some localities.

In a field at St. Annes College, Church Point, N. S., that was sprayed under the direction of Rev. P. Le Chantoux one hundredth of an acre in the sprayed portion of the field gave at the rate of 276 bushels of large or marketable potatoes and 30½ bushels of small or unmarketable potatoes. One hundredth of an acre in the same field

but unsprayed yielded at the rate of 183 bushels of large or marketable potatoes. The benefit in marketable potatoes on the acre at Church Point College this year is 96 bushels of marketable potatoes. As usual the unsprayed portion is giving the largest yield of unmarketable potatoes.

## Store Apples Quickly

Storing apples in cool, dark basements as soon as possible after picking contributes largely to the keeping qualities of the fruit as determined by the department of horticulture at the Ohio Experiment Station. A favorite method used is to allow the crated or barreled apples to remain in the orchard over night and then take them into the storage each morning during the picking season. In this condition they keep well in a basement room.

Leaving apples piled under trees for several weeks exposed to the sun and wind tends to make them ripen more rapidly, and when stored following such treatment they decay much more quickly. Under storage conditions with a fairly uniform temperature, apples will ripen slowly and with the minimum waste as compared with fruit which is forced into maturity by piling under trees for a short time. Contrary to the old opinion, apples do not require a "sweating" process to keep well.

Certain varieties, like the Russets, Mann, Ben Davis and Black Ben are improved in quality by burying as these are long keepers and require a long storage period to make them palatable. Cellar storage conditions cause varieties like the Russets to wither, but when kept in a pit their flavor, quality and firmness are retained until they

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Brantford - Ont.



mature. Even these varieties should not be allowed to remain in piles in the orchard before being buried.

## Profit Off Ten Acres

In response to a request for information as to the value of the fruit that can be grown on ten acres of land in the Niagara district, Mr. W. E. Biggar, of Hamilton, Ont., Chief Provincial Fruit Inspector, has secured the following figures from a fruit grower giving his sales for the years 1915, and 1916.

1915.	
Sour cherries .....	\$ 468.75
Goose berries .....	11.00
Red currants .....	25.00
Black currants .....	23.98
Rasps .....	106.58
Peaches .....	489.00
Plums .....	273.16
Pears and crab apples .....	3.40
Grapes .....	424.95
	\$1,825.82
1916.	
Black currants .....	\$ 46.70
Apples .....	2.00
Gooseberries .....	3.20
Red currants .....	25.33
Straw berries .....	23.20
Sour cherries .....	508.55
Sweet cherries .....	6.00
Plums .....	429.00
Peaches .....	149.00
Grapes .....	267.76

\$1,460.74

Such figures as the foregoing are apt to prove misleading where the expense figures also, are not given. For instance, the expenses of picking and packing alone would be about \$500.

## Gather the Nuts

Throughout Canada there is a generous supply of nut-bearing trees which yield an abundance of edible nuts rich in food value, as the butternut, black walnut, the hickories, hazelnuts and beechnuts. Nuts are more nutritious than milk, eggs, bread and meat, one ounce of nut kernels being equal in food value to a pint of milk. Nuts are ready to eat without the labor and cost of cooking. They may be served in the form of delicious sandwiches, in salads, in fruit jellies and cakes, or a handful may be kneaded into a loaf of bread before it goes into the oven. A few kernels put through the nut chopper

and scattered over the breakfast cereal adequately supply the place of bacon.

This important food crop is waiting in the woods to be gathered in. A few afternoons spent nutting in the woods during the bright autumn days will supply the home with nuts for the winter and will save the meat supply for our country's defence. After gathering the nuts should be spread on the attic floor or on shelves in a dry place to allow the surface moisture to escape. They may be cracked at leisure by the boys and girls in dull weather and stored in air-tight glass jars.

A few of the finest nuts should be saved for planting nearer home. Nothing will give the children greater pleasure than to choose and plant their own nut trees. If space allows, a future nut-orchard might be planned or young trees transplanted as shade trees. The beech is a very beautiful tree, both in winter and summer and the butternut, walnut and hickory make good garden shade trees and their wood is very valuable.

The butternut occurs from New Brunswick to Ontario, while the black walnut is found in the southern part of Ontario. The shagbark hickory ranges from Quebec to the north shore of Lake Huron, the mockernut hickory occurring in Ontario only. The hazelnut extends from the Maritime Provinces to Saskatchewan; the beaked hazelnut has an even greater range, extending into British Columbia. The beech ranges from Nova Scotia to Ontario.—Experimental Farms Note.

## Boiled Cider

There exists in Canada a potential market for boiled cider that would consume many times the amount now produced if the product could only be obtained. Boiled cider is the fresh juice concentrated by evaporation in the ratio of five gallons reduced to one. In this form it will remain in a perfect state of preservation for years. It is dark brown in color and of a syrupy consistency. It has an extensive use both commercially and in the kitchen, being especially desirable for making mince meat and apple butter as well as having a multitude of other culinary uses.

By continuing the evaporating process till the cider is reduced to the ratio of seven to one, the product becomes jelly, which makes a delightful tart spread. To please varied tastes it may be sweetened and any desired flavoring may be added. A ready market at attractive prices awaits all apple jelly offered.



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References: The Canadian Bank of Commerce (Market Branch) and Commercial Agencies.





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## POULTRY YARD

### Points that Determine Success

Feed and eggs will probably be expensive this winter. More than ever then it will be necessary to make every pound of feed tell in eggs or flesh. To do this, it will require vigorous culling of the flock, good housing and care, and business methods in buying the feed and selling the product. Keep for laying only those birds that will likely lay winter eggs or produce good strong-germed eggs for hatching in the spring. This means that, in the American or heavier breeds, hens over two years old will be sold or eaten, only the best of the one-year-olds kept and none of the late pullets. Even the well-matured pullets should be carefully selected, keeping out any that may lack vigor or constitution.

In a test covering three years at several branch Experimental Farms during the months of November, December and January, early pullets produced eggs at a cost per dozen, for feed, of 18.3 cents; late pullets, 56 cents; one-year-old hens, 78.2 cents and old hens, \$5.73.

There are a lot of pullets this fall too late hatched to keep for laying, at the present price of feed. Any pullet that is not nearing maturity by November will not pay to hold. Feed such with the cockerels, and market. It does not pay to feed a pullet till February before she lays.

A two-year-old Leghorn hen may be worth keeping but a two-year-old Rock hen is usually a loss. If all these old hens were not sold in the spring or during the summer, get rid of them now.

In selecting the one-year-old hens to keep for breeding, pick out the ones that moult late in the year. Those that are in full new feather in November are not the layers.

Even at the present cost of feed, it does not pay to sell thin birds. Three and a half pounds of ground grain will produce one pound of flesh. Don't sell all at the same time, sell those that are ready first, spread the sale over several months, keeping if convenient, some of the cockerels till after Christmas.

#### Housing and Care.

Before the pullets are put into winter quarters, see that the house has a good cleaning and a coat of white-wash. Stop all cracks, but open the south side.

Don't be afraid of plenty of fresh air and sunshine.

Pullets should be housed before they start to lay. When nearing maturity they should not be excited. Keep the dog away. Every time they are frightened means a loss of money.

Start with November to keep track of the receipts and expenditures. Write Poultry Division, Experimental Farm, Ottawa, re forms for this.

Now is the time to look up a new-laid egg trade. Those who have fresh eggs now will get good prices and can secure customers for the whole year. Sell all produce as directly to the consumer as practicable.

Wheat fit for milling purposes should not be used for poultry feed. Oats, buckwheat, barley, corn, screenings, buckwheat screenings, etc., can be used. Feed a mixture of

grains in litter morning and night. In the mash, dry or moist, use bran, shorts, ground oats, etc. Give milk to drink and table scraps and if there is no milk, use beef scraps. Give grit and shell, green feed, and keep birds and houses free from vermin.

### Poultry Pointers

Too many poultrymen care little for the quality of eggs when produced. Their aim seems to be quantity to the utter neglect of quality; yet no one can make a big success of poultry work without a study of the care of eggs.

Food affects the shell as well as the flavor of the eggs. Poultry which is constantly kept without range needs watchful care to prevent the shells from being brittle and porous, yolks pale and flavor flat.

If hens are given proper feed, infertile eggs will be sweeter and keep longer than if males run with the flock. Ten days after every male has been taken from the flock, the hens should lay better and the eggs be better. Male birds not needed for breeding pens are a nuisance as well as an expense, and the roosters which are kept as breeders should be penned away from the females.

The shape of eggs varies with the age of layers, those of old hens being larger and rounder than those of pullets. There is no foundation of fact for the superstition that the sex of a chick can be determined by the shape of the egg.

Eggs stay full longer in an air-tight package than in a loosely made crate. Oats and bran draw moisture from the eggs like a poultice, so are not good packing material. Washing an egg removes its natural waxy covering and permits rapid evaporation of moisture, so that eggs stale quickly. This is the reason for the admonition never to wash an egg. Dirty eggs may be cleaned with a greasy cloth.

### Remedy for Scaly Leg

Scaly leg of poultry, a disease often noticed on fowls during the late fall and winter, may be controlled by an acaricide tested at the Ohio Experimental Station. From a number tried out the following gave the best results:

Oil of caraway, one part, and lard or vaseline, four parts.

Flour of sulphur, one dram; carbonate of potash, 20 grains; and lard or vaseline one-half of an ounce.

The crusts formed by the mites on the legs of fowls should be softened by soaking the feet and legs in warm water for several minutes; a portion of the scales may be removed and the mite killer applied.

Healthy birds may come in contact with the disease on perches or nests. It may also be introduced into a healthy flock by the purchase of infested birds.

The Victory Loan affords us stay-at-home Canadians a chance to do our bit—with a bond—and thus to give expression to our pocket patriotism.



## Save the Shade Trees

Editor, The Canadian Horticulturist: About 30 to 40 years ago I am told that there was a general policy of bonuses given for the planting of shade trees on our roads. Reasons were given for this: Our forests were being depleted and the winds were having a greater sweep of country. This in many places, was causing the soil to drift. Then there was the question of moisture. A large number of reasons were given why there should be trees on our highways.

In many of the older sections of Ontario there are no trees on the farms, trees can only be found on the roads, and from them all the protection from winds must come. We now find that the Hydro, the Bell Telephone Company and other line men are destroying these trees. Instead of, in many places, erecting poles high enough to carry the wires over the trees, they are erecting cheaper poles and then butchering the trees to suit the poles, it being their policy to destroy what it has taken half a century to grow, for the sake of saving a few cents on a pole.

We are now reaching the stage where every individual and municipality must immediately take action or we will be face to face with conditions which will be unnatural to this country. We must at once stop the destruction of our shade trees by these corporations.

I want your co-operation in making public to your readers that no matter what corporation or Hydro Commission are at work running their lines, the private individual and the municipality has rights and trees fronting on his property cannot be trimmed or destroyed without the consent of the property owner and the municipality.

The Ontario Tree Planting Act provides for this, and I would be pleased to see you publish for your readers' benefit a copy of said act.

By doing so you will assist in making known to our people what their rights are. If this is done I am satisfied that no more of our trees will be butchered. The corporations have in the past got away with the bluff that "They had the right to go where they wanted to and to cut any trees that were in their way."—J. E. Carter, Sec'y, Horticultural Society, Guelph, Ont.

## A Use for Apple Cider

Sugar and sugar products are scarce and high these war times and a practical use of the generous sugar content of apples is, therefore, especially acceptable. An extensive series of experiments by the Department of Agriculture at Washington, resulted in the development of a method of making apple table syrup which produces an attractive article of very fine flavor.

The process is as follows: Stir into seven gallons of sweet cider five ounces of powdered calcium carbonate—a harmless, lowpriced chemical—and boil in a large kettle five minutes. If a large vessel is not available the cider may be boiled in batches. Pour the cider, after boiling, into glass jars and allow it to settle until perfectly clear, which requires about seven hours. Return the clear liquid to the preserving kettle, being careful not to pour off any of the sediment. Fill the vessel only about half full, as it foams up when boiling. Add a level teaspoonful of the lime of carbonate for the seven gallons of liquid and boil rapidly until a temperature of 220 degrees is reached, or until it is about one-seventh of the original volume and the consistency of maple

syrup when cooled rapidly and poured from a spoon.

To insure clear syrup the cooling must be done slowly. A good way is to set the jars of syrup in a wash boiler of hot water and allow the whole to cool. Use this syrup like any other table syrup, and as a flavoring adjunct. Also as sauce for puddings, and for making brown bread, fruit cake, candy, etc.

## Must be Licensed

Licensed dealers in apples, turnips, potatoes and other fruits and vegetables, often have men living in different parts of the country, acting as their agents, in buying or contracting such produce, superintending the loading of same, on cars ready for shipment, and receiving a commission from said dealers for such work.

The Canada Food Board has pointed out recently that all such agents operating in the manner mentioned, without first having secured a license from the Board, are doing so contrary to the order dated 13th day of December, 1917, wherein it states:—"That on and after the first day of February, 1918, no person shall deal wholesale in fresh fruits or fresh vegetables, without first having obtained a license from the Food Controller," and in violating such order are guilty of an offence, and subject to a penalty not to exceed \$1,000.00, and not less than \$100.00.

Remarkable success in the production of fruit and vegetables off 9¼ acres of land was achieved last year by Mr. J. L. Hilborn, formerly of Leamington, Ont., in Essex County, but now in charge of one of the illustration fruit and vegetable farms in British Columbia. From this small area Mr. Hilborn produced fifteen crops of different varieties of fruit and vegetables which sold for \$7,195.00. His expenses were \$2,237.00: His net return was \$4,958.00.

I have taken The Canadian Horticulturist for one year and am very pleased with it. I look out for it every month.—J. Dennis, North Cobalt, Ontario.

## Deafness



Perfect hearing is now being restored in every condition of deafness or defective hearing from causes such as Catarrhal Deafness, Relaxed or Sunken Drums, Thickened Drums, Roaring and Hissing Sounds, Perforated, Wholly or Partially Destroyed Drums, Discharge from Ears, etc.

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## SOCIETY NOTES

(Continued from page 261)

was very creditable when the excellent showing made by the St. Thomas Society, arranged by that genial past-master, Dr. Bennett, had to take second place.

### Hamilton

Through the activities of the Hamilton Horticultural Society as well as of various local organizations, supported and assisted by it, war time gardening received a great impetus this year in the city. During the past two months a number of the local organizations have held exhibitions of the products of their members with most satisfactory results.

The pupils of the Victoria Avenue School



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Visitor: The Lord Bishop of Toronto.

### A Residential School for Girls

Young Children also received.

Preparation for the University. Art Department, including drawing, painting, wood carving and art needlework. Toronto Conservatory Degree of A.T.C.M. may be taken at the School. Fine, healthful situation. Tennis, basketball, skating, snowshoeing, and other outdoor games.

For terms and particulars apply to the Sister-in-Charge, or to the Sisters, of St. John the Divine, Major Street, Toronto.

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(Advertisement)

staged a very fine exhibition. The exhibits were so numerous several of the rooms of the school were required for their proper display. Prizes were not given, but awards were made, that greatly pleased the successful winners. Every well known class of vegetable was shown as well as numerous varieties of flowers. The exhibits included poultry, rabbits, and the products of the domestic science classes.

The Mount Hamilton Community Garden Club held a fine exhibition in the Parish Hall of the Holy Trinity Church, a feature of which was the giving of a number of addresses, including an address on "Insect Pests," by W. G. Biggar, Fruit Pest Inspector. The prizes won at the show and in the garden competition were presented by Mrs. R. B. Potts, and by Mrs. Schumacher of the Horticultural Society. One of the speakers was Mr. J. M. Webber, the President of the Society.

Somewhat similar exhibitions were held by the St. Giles Church Home Garden Association of the Hamilton Horticultural Society, and by the West Hamilton Horticultural Club. At the latter, the prizes won by the St. Margaret's group of Boy Scouts were presented by Mrs. Potts. Mrs. Potts, who has accomplished a great work among the boy-scouts, spoke enthusiastically of their work.

### St. Thomas

The St. Thomas Horticultural Society have maintained a constant exhibit of seasonable flowers throughout the past season in the beautiful windows of The C. H. Hepinstall & Sons store, exhibits of gladioli being the leaders. The bloom shown were the latest hybrids of Diener of Kentfield, California; Groff of Simcoe; and Kimderd of Goshen, Indiana. Some beautiful varieties in Holland stock were also shown.

Mr. J. A. Washburn brought down a magnificent collection of dahlias, over 100 varieties in all, from his summer home, "Partidge Lodge," near Portland, Ont. These were on display for three days and were admired by thousands.

On account of extraordinary expenses incurred by the Society in creating a beautiful park out of the waste land in the immediate vicinity of the M.C.R. station, a deficit was created. A subscription list was circulated. The Board of Trade endorsed the idea in a practical way by donating \$100.00. The Industrial Committee asked the City Council for \$100.00 towards the subscription, and it was unanimously granted; two \$25.00 private subscriptions, two \$20 ones, one \$15.00, 38 \$10.00, 43 \$5.00 and about \$30.00 in smaller amounts, or \$1,000.00 in all were received. The happy feature of the whole thing was that every cent was given heartily and not over ten refusals were recorded. The Horticultural Society's park has reclaimed an eyesore of many years standing at a cost to date of \$2,000.000; the M.C.R. contributing \$500.00 per year for five years for its maintenance. The plans were furnished free by Mr. H. J. Moore, of Queen Victoria Park, Niagara Falls.

Notwithstanding all predictions to the contrary, the Society duly received their supply of tulips and other Holland bulbs as usual with the exception of their arriving about one month earlier this year than formerly. The shimpents were made via England and Montreal and an import license was required from the Canada War Board. This latter fact seems little known by the average bulb importer.

## A National Flower for Canada

Editor, The Canadian Horticulturist: Our American cousins in selecting a national flower for the United States of America, canvassed all the States of the Union before deciding.

After great care in finding a flower indigenous to all the states, they finally settled on the "Golden Rod," the generic name of which is solidago, and which was settled by Act of Congress as the national flower. It is a general favorite among our autumnal wild flowers, and has many varieties. I know of three natives of Wentworth County.

The flower which I would modestly suggest for Canada is the "Trillium Alba" (three leaved night shade) commonly known as the "White Lily," or "Trinity Lily," the most beautiful of our spring wild flowers, with a slightly pleasant odor like some rare Japanese perfume. John Macoun, M.A., F.L.S., F.R.S.C., Naturalist of the Geological and Natural History Survey of Canada, gives it as a habitant of all the provinces of Eastern Canada, and it is found in all the woods of the Pacific coast.

It decorates the altars in the churches, teaching the same lesson the Shamrock taught the Irish, when St. Patrick explained the doctrine of the Trinity.

### HORTICULTURAL CONVENTION POSTPONED.

Owing to the influenza epidemic the Annual Convention of The Ontario Horticultural Association, which was to have been held in the Parliament Buildings, Toronto, on November 13, 14 and 15 has been postponed until the first week of February, when it is expected that reduced rates on the railways will be again available.

For the same reason, it was necessary to postpone the meetings of the different local Horticultural Societies. We are advised by Mr. J. Lockie Wilson that these may now be held any time, without making petition to the Minister.

It beautifies our homes, in drawing room, or on supper table; and will last far longer than most flowers, as it turns a delicate lavender from the purest of white.

As a motif for decoration, it will lend itself to the most beautiful of designs, whether natural or conventionalized.

The children bring them to their teachers in school, as you often see them adorning the kindergarten windows; an innocent offering of love.

Blooming as they do about "Empire Day" (the foundress, Mrs. Clementine Fessenden, who has just passed to her rewards in Hamilton), they could be used in the years to come to decorate the monuments to our noble and sacred dead, who lie in "Flanders Fields," as they can be made into beautiful wreaths.

The passage of a bill through parliament could be sponsored by the members from Halifax and Vancouver; and its passage through the Senate by a member from Quebec and Ontario.

Maybe in the the future Canadians will see it in the forest alleys of St. Cloud, Fontainebleau and Rambouillet.

It will grow and bloom with no special attention by first planting it in leaf mold, and will stay in bloom for some weeks, turning to delicate lavender as it fades.—J. H. C. Dempsey, Hamilton, Ont.



cause quite a bit of inconvenience to Horticultural Societies who import direct. A three months license was given to the St. Thomas Society to import 100,000 bulbs.

Never have the hospitals, the churches and the sick received as many flowers from the Society as this season. The Society has a garden containing some 6,000 H. T. roses, which were bought and planted to be used later as options and to sell to members. These kept on blooming most profusely all season, notwithstanding dry weather, thanks to cultivation, and as many as a clothes basket full at a time have been picked. Hundreds of gladiolus bloom were also available. As soon as frost destroys the outdoor flowers the bloom from the City's Municipal Green House are available to the Society.

The Society again exhibited at London Fair in September. A space 30' x 5' was filled to overflowing with the choicest varieties of roses, dahlias, gladioli, pansies, asters, etc. As an educational feature this exhibit created the greatest interest, surrounded as it was at all times by enthusiastic horticulturists eager to learn the names of the newer creations of famous hybridists.

## London

Our society has had a most successful season, our membership having been increased from 600 to 1100. We give The Canadian Horticulturist as part of our premiums, and it is much appreciated. Six flower shows were held, the first for premium tulips from last fall, then the show for Darwins and spring flowering varieties. Our rose show in July was unsurpassed for variety and quality, those shown by Mr. McNaughton and Mr. Wood being especially fine. Peonies were next, and this good old flower, which should be in every garden, brought forth the best bloom ever shown in Western Ontario, as some of the best and most expensive varieties grown have found their way to London.

In August Gladiolus came in for their share of attention, and the varieties of Diener, Kunderd, Groff, and the other big originators were shown in abundance, along with the fine new hybridizations of our president. An enthusiast who was at the big show at Buffalo, made the remark, that for quality and size there was nothing there to beat those shown in London. A continual showing of seasonable bloom has been kept at the Public Library, and the results have been far reaching.

## Winnipeg

Few cities have entered into the campaign to promote war gardens with more energy and success than Winnipeg. It has been estimated that this year there were over 20,000 war gardens in the city and vicinity. In order that the season might be brought to a fitting close and stock be taken of the results achieved, the second annual exhibition of horticultural products for the province was held in Winnipeg during November. An illustration of a portion of these exhibits appears on page 256 of this issue.

An indication of the great increase in interest this year was furnished by the number of entries, which amounted to 1558, as compared with 475 last year. This made it necessary to secure nearly 5,000 more square feet of space to stage the exhibits. The exhibits by amateurs exceeded those of the professionals by six to one.

Twelve teams of children from provincial points gave demonstrations of canning and dehydrating vegetables. There is talk of establishing a cold storage plant to stock the vegetables grown in the amateur gardens of the city.

Among the special exhibits were group

displays by the Winnipeg Parks Board and the Agricultural College, as well as displays by the Greater Winnipeg Water District Agricultural Societies, The Tuxedo Convalescent Hospital and the Boys' Home. About half a dozen schools competed in a special school competition.

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## DOUGLAS GARDENS

### Catalogue for 1918

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## CLASSIFIED ADVERTISEMENTS

Advertisements in this department inserted at the rate of 15 cents a line, each line averaging seven words. Part lines count as whole lines, minimum of two lines accepted. Strictly cash in advance.

## BEE SUPPLIES

**FOR SALE**—1 second-hand Sibbald wax press, 8 new double-walled hives, 15 new shallow supers. Mrs. C. Boyd, Petrolia, Ont.

**FOR SALE**—40 double wall 10-frame hives, price \$1.50 each. J. D. Evans, Islington, Ont.

## REAL ESTATE

**ALL KINDS OF FARMS**—Fruit farms a specialty. Write, stating requirements. W. B. Calder, Grimsby.

**GOOD FARMS** for sale, in the vicinity of Thornloe, New Ontario. Write, stating requirements, Wm. Agar, Thornloe, Rt. 1.

## SEEDS, BULBS, PLANTS, SHRUBS

**BULBS**—Our Holland Bulbs have just come to hand, and on account of the short selling season, we have decided to dispense with our FALL CATALOGUE, and sell them all from our IMPORT PRICE LIST. These prices are away below regular fall prices. Write for our IMPORT BULB CATALOGUE at once. You can plant any time in November. Our bulbs have come through in fine shape. Morgan's Supply House, London, Can.

**C. KEUR & SONS**, Hillegom, Holland. Bulbs of all descriptions. Write for prices. New York Branch, 8-10 Bridge St.



We have a large stock of all sizes

**FLOWER POTS**  
FERN OR BULB PANS

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HAMILTON, ONT.

## Apple Scald and Jonathan Spot

**S**CALD in apples is a browning of the skin and outer tissue. It is different from rots because in rots the browning goes very deep into the tissue, whereas scald only affects the skin and the flesh immediately beneath. Rot spots are usually definite in outline, while scald areas are often more or less irregular in shape. However, scald areas are very often invaded by rot fungi so that ordinarily one may expect to find all sorts of combination of the two.

The "Jonathan Spot," so called from its being found very frequently on the Jonathan variety, also develops in storage on several standard varieties such as Northern Spy, Greenings, etc. The spots are usually small, less than one-quarter inch in diameter, and are sunken and brown. The flesh under the skin is brown and somewhat dry and corky. There is another spot disease, the Baldwin Spot, or Stippen, which may be mistaken for the Jonathan Spot. The Baldwin Spot, however, develops when the apple is growing and will be present when the fruit is picked, whereas the Jonathan Spot develops during storage. Moreover the Baldwin Spot may be found all through the fruit, while the Jonathan Spot occurs as small sunken brown spots on the surface only.

Both Spot and Scald arise from improper storage conditions and will likely be worse on fruit that has not matured properly before being picked. The three storage conditions that favor spot and scald development are, (1) high temperature, (2) humidity, and (3) stagnant air. It should be understood that the fruit is not completely dormant during the storage period, but there is a constant, if small, continuation of growth processes throughout the whole period. These processes result in maturing or mellowing the apple, and the chemical processes which occur during them, involve the absorption of oxygen from the air and the giving out of carbon dioxide. It is, in fact, a slow breathing process. When apples are stored in a place where they have no free access to air they are "smothered," and the scald which develops on them is due to abnormal chemical changes brought about because of an inadequate air supply. If the room is too warm, the growth processes are quickened and scald or spotting is increased.

Very moist or humid air also aggravates these troubles.

It is obvious that in an ordinary cellar, spotting and scalding can be largely avoided by a little attention to the needs of the fruit for cool, dry conditions and a continuous supply of fresh air during the storage period.

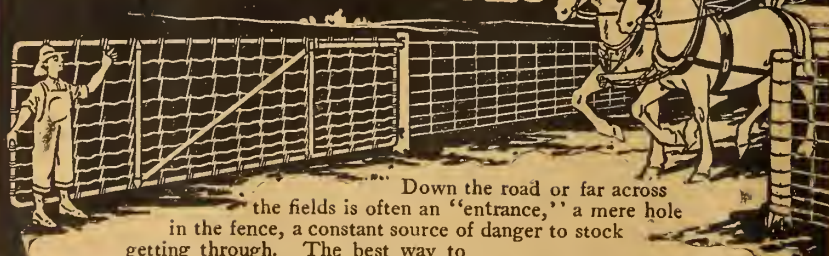
It is recommended, (1) that apples should be stored in small lots rather than in large close piles or bins. They should preferably be kept in open slatted boxes or other similar containers which will allow all the fruit to have free access to air. (2) That the temperature be kept as low as is consistent with protection from frost and (3) that plenty of ventilation be provided. If the air is changed frequently in the cellar, the incoming supply will not only renew the oxygen, but will drive out the old, stagnant air which is laden with moisture and overcharged with carbon dioxide. The method of ventilation can best be determined by conditions; in some instances air shafts can be used, while in others the opening of doors and windows on mild days will be possible. In almost all cases some simple means of securing frequent change of air can be readily adopted and the fruit thus kept free from scald and spot troubles.—Extract from Experimental Farm Note.

## Ravages of Peach Canker

In passing through the peach orchards of Niagara Peninsula, or elsewhere in Ontario, where peaches are grown, one constantly meets with large, dark, gummy lesions on the trunks or limbs of the trees. This diseased condition of the branches was formerly given the name of "gummosis" on account of the gum exudations which are so regularly associated with it, but a closer study of its nature indicates that this disease clearly belongs to the type of affection known as canker, for which reason the latter name is now adopted, according to Mr. W. A. McCubbin, M.A., Assistant in charge of Fruit Diseases of the Dominion Plant Pathological Laboratory, St. Catharines, Ont., in bulletin No. 37, second series, entitled "Peach Canker." This bulletin can be had free on application to the Publications Branch, Department of Agriculture, Ottawa. Mr. McCubbin gives a description of the disease, some account of the extensive damage caused by it, its prevalence in the Niagara Peninsula, Lambton, Essex, and Kent, Ont., the nature of the trouble, and steps that should be taken to control and remedy the evil.

"The apple is the king of fruits. Whether fresh, dried, evaporated or canned, it is a wholesome food, easily prepared, attractive and palatable at all times."—"Always cook apples in earthen or granite utensils and use silver, granite or wooden spoons for stirring. The use of the apple as the basis for all manufactured jam is well known. This is due to the large amount of pectose which it contains. There is no waste to a good apple; even the paring and core may be utilized for jelly. Fruits are classified as flavor fruits and nutritive fruits—the apple comes under both of these heads." Extracts from a booklet issued by the Fruit Branch of the Dominion Department of Agriculture, giving 160 recipes for the use of the apple. The book can be had free from the Department of Agriculture, Ottawa.

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# THE CANADIAN HORTICULTURIST

Vol. 41 - No. 12  
DECEMBER - 1918

TORONTO, ONTARIO

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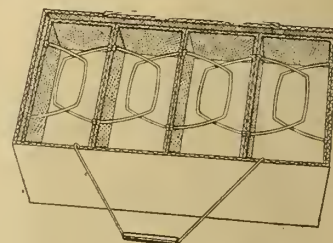
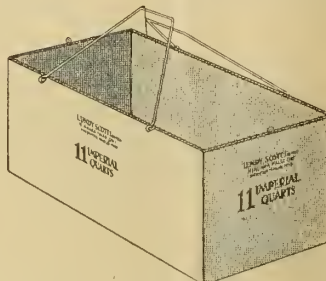
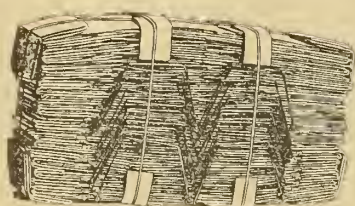
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# The Canadian Horticulturist

Fruit Edition

Vol. XLI

TORONTO, DECEMBER, 1918

No. 12

## Future Prospects of the Fruit Industry

NOW that the great World War in Europe has ceased and that peace is in sight, with its prospect of a reasonably-early return to normal of the trade conditions that have been so seriously upset during the past four years, many fruit growers naturally are asking, What are the prospects for the fruit industry? Desiring to gather the views of those who should be in a position to discuss this matter, THE CANADIAN HORTICULTURIST wrote recently to a number of men well known to Canadian fruit growers, and asked them for expressions of opinion. Some interesting replies have been received. Not all of these can be published in this issue. Some are here given, and the balance will appear in our January issue.

### Mr. Macoun's Views

Mr. W. T. Macoun, Dominion Horticulturist, Ottawa, writes as follows:

"While the apple orchard on the mixed farm has been neglected to some extent during the war, the fruit plantations in the fruit districts, where most or all of the revenue comes from fruit, have been kept in fair condition on the whole. The apple orchards which have been neglected have not yet suffered serious permanent injury from this neglect as, providing apple trees are sound, they can be re-invigorated by cultivation, pruning, spraying and fertilizing, so that in two or three years they should be in good condition again. There was, of course, great loss among apple trees of bearing age in the Province of Ontario as the result of the severe weather last winter, and peaches also suffered to some extent. Only statistics will show just how great the losses have been. While this loss may lessen the crop somewhat for a time, there are so many fine young orchards coming into bearing in Ontario that with good care there will still be an abundance of good fruit.

"What markets there will be for Canadian apples in the future can only be determined later on, but with the uncertainty of good fruit crops in Great Britain and the great demand for Canadian fruit, there and with the constantly increasing home market, which there promises to be in the future, the apple should continue to be the most important fruit crop.

"The tender fruits such as peaches and grapes should continue to be profitable to the growers of them, as the districts in which they can be grown cheapest and most successfully are limited and the demand will grow with the population.

"Small fruits can be grown successfully over a wide area, and we should

fruit growing is looked upon by many who have not had experience in growing fruits as one where good profits can be obtained without very hard work, we should expect that there will be much interest in fruit growing shown by many people during the next year, without any special effort being made to interest them."

### An Optimistic View

A well-known fruit grower of Grimsby, Ont., who asked that his name should not be used, wrote as follows:

"Less than a decade ago, a large number of fruit growers, when you met them, would, in a sad pessimistic tone, and with direful shaking of the head, ask, 'What are we going to do with our fruit, when all the trees that are being planted come into bearing?' Methinks I can hear them yet!

"The question has been answered to the satisfaction, or rather dissatisfaction, of everyone; by the loss of probably 40% of the trees planted during the last decade. The factors contributory to this were, to a great extent—First, the war. The country was so depleted of men that a vast acreage of orchards, as a result of labor shortage, had to be neglected, as to cultivation, pruning, spraying, etc. This naturally left them in a weakened condition, and more susceptible to the second factor, viz., the severe winter of 1917 and 1918, which completed the disaster, with a possible loss of the percentage I have stated.

"What is the remedy? Carry on! Plant more trees, and then more! What will we plant? Whatever your soil and climatic conditions will produce the best. Grow that.

"I am of the opinion that there is no variety of fruit at the present time that can be overplanted. Our country is bound to go ahead. Our population will increase; market conditions will become righted.

"The labor situation will improve. Transportation facilities should be greatly enhanced, which together with co-operative marketing should assure the future of our industry. Let us banish from our minds all forms of pessimism. Go forward without fear of the future, and all will be well. Have



Cherry pickers in the orchard of Mrs. Porley, near Kelowna, B.C. Two are National Service girls sent out from Vancouver. The others are local women.

expect many more persons to take up the growing of small fruits in the future than there have been in the past. There are great opportunities near the cities and towns all over Canada for the production of small fruits to supply the local demand, and we believe that a combination fruit and vegetable business near the cities and towns where, in addition to small fruits, a limited number of apple and plum trees would be grown for selling the fruit in baskets offers good opportunities and promises fair returns.

"The fruit industry will be assisted best by greater co-operation among the growers and this will come about as the necessity for greater average returns is pressed home on the fruit grower. As



faith in yourself. Have faith in your business. Have faith in your country."

### Nova Scotia Conditions

Supt. W. S. Blair, of the Kentsville, Nova Scotia, Experimental Station, writes: "There has been no appreciable decrease in orchard areas in Nova Scotia. Very little planting, however, has been done since the war started. The small fruit areas are not as large as formerly and have decreased about 25 per cent. This decrease is confined to strawberries.

"Apples are, of course, the most profitable fruit in Nova Scotia. Owing to black knot, plums have not been a very satisfactory fruit to plant. It would seem that conditions are ideal for the black knot and many profitable plum areas have been destroyed by it. There is a good opening for increasing the planting of this fruit, we think, with profitable results. For some reason the pear crop has been light for several years and little profit has resulted. It would seem that there is ample opportunity for some investigational work to find out why the pear crop is so uncertain.

"Interest in fruit growing centres around the apple. There is still the lively interest in this crop as formerly and without a doubt every fruit grower will plan to give his orchard the attention it requires. My opinion is that the development of regular monthly meetings in the rural districts is of prime importance, the organizing for these to be carried on by the District Representative. There are a few District Representatives in Nova Scotia, but there should be one in each county. The rural districts are favorably disposed toward such meetings, but they require some direction and organized effort on the part of some one to make them a success. The people of the community should, through some organization amongst themselves, be responsible for the carrying on of such work. A series of subjects should be outlined and one subject only allowed for an evening, and only one outside speaker, thus giving time for free discussion by the people in attendance, and also an opportunity for social intercourse. An effort such as this is essential if the best general management of our orchards is to be hoped for. The rural communities are looking for some one to direct their thought and energies along absolutely right lines. Have we the information and the men to do this? Agricultural organizations can be of little value until they are directed into activity for a definite object. Throw upon the organizations, whatever they may be, some definite educational responsibility and see how quickly they will revive. Bring back the old Grange day, devoid of its commercialism, and you bring to our rural districts a new life.

Let the motto be, 'The Betterment of the Community in which we live.' Without more activity in the organization of rural districts for agricultural

education the larger organizations cannot become effective and much of the work being done to assist in agricultural development misses its objective."

## Apple Scab Control in British Columbia

Chas. L. Shaw, Victoria, B.C.

SCAB has always been one of the British Columbia fruit growers' most formidable enemies, although in recent years it has been kept fairly well in check, due to the relentless war waged against it by the Department of Agriculture experts and the growers themselves. Nevertheless, it is still prevalent in many orchards, especially where the climate is moist.

Where weather conditions still permit this is the time to prevent its appearance in the orchard next year. It has been shown that this disease, which often becomes a serious menace unless guarded against, is spread largely by infected leaves. The best preventive measure is to see that the leaves are kept away from the roots of the trees, and the safest plan is to have them raked together and kept well removed from the trees in a compost heap or also promptly ploughed into the ground and buried. Under the soil they will serve as valuable fertilizer.

While scab affects the leaves, flowers, flower-stalks and young twigs, the best known form of the disease is on the fruit, which is slightly affected if blemished with black spots, and if severely attacked is stunted, malformed and commercially worthless. Fruit that has been extensively "scabbed" often cracks open, thus becoming an easy victim of rot fungi.

McIntosh Red and Fameuse (Snow) are probably the most susceptible of all apples to scab. Yellow Newton, Gravenstein and Winter Banana also scab badly, while Blenheim Orange and Ontario are somewhat resistant. The disease is spread by the spores of the fungus falling on the leaves, fruit, etc., when, if there is moisture, germination takes place and the fungus enters into the outer tissues. Moisture, however, is the essential to germination. If moisture can be prevented the trouble is controlled.

### THE CHIEF DEFENCE

While ploughing under the old leaves is one safe and effective measure of combatting scab, the apple grower's chief defence is in proper spraying. The object should be to coat the entire susceptible surface of the tree with a thin layer of some material through which the germinating fungus cannot penetrate.

Here are the methods recommended in British Columbia for fighting apple scab:

(1) When the first leaves are about the size of a ten-cent piece spray with

lime-sulphur concentrate 30 to 1. This is recommended when the opening of the buds extends over a long period owing to cold and wet weather.

(2) When the blossom buds are well separated in the cluster and showing pink, but before the blossom opens, lime sulphur 1 to 35 should be used. The same spray should be applied as soon as the petals have fallen. The mixture might run in the case as high as 40 parts to one of water.

(3) Two weeks later—or ten days if the weather is wet—the same spray can be applied. If the season is dry it may be deferred for three weeks.

(4) An additional spray ten days to two weeks later is practised in some parts of Canada, but is rarely necessary on the Pacific slope.

## The Peach Borer

Tests covering a five-year period at the Ohio Experiment Station with the peach borer, indicate that "worming" twice a year is the only dependable method of control. Sprays, repellent washes and poison coatings are unsatisfactory to use in combating the borer and sometimes are even injurious to the peach trees.

Newly-set peach orchards are not readily attacked by the borers if the old, infected trees are cut out and burned. For orchards which have been planted a year or more, entomologists have found it necessary to cut the borers out twice a year—in November and during the early part of June. This prevents the grubs from extending their burrows which sometimes girdle and kill the trees. It also prevents the development of the life cycle of the borer, which, if undisturbed allows the moth to lay from 300 to 650 eggs.

Mounding the trees with six to eight inches of earth helps to keep a large number of the borers from gaining entrance to the roots. This mound should be hoed away from the tree one or two days before worming so that the borers may be located by the exuding gum. The cuts made into the trunks and roots of the tree should be with the grain of the wood and wedge-shaped to facilitate healing.

"I have found THE CANADIAN HORTICULTURIST very helpful, as it gives me many pointers on things that I have wanted to know."—MRS. WESLEY FREEMAN, Godfrey, Ont.



# What Peaches to Plant, and Why

A. P. Marshall, Niagara Falls, Ont.

It may seem unimportant what varieties of peaches are planted so long as they are good ones and produce in quantity and sell readily, but other considerations must be thought of as well if the orchard is to work to the best advantage when the trees get large enough to bear their crops regularly. Did you ever see the difficulty experienced in a large orchard planted entirely to one variety at harvest time when the crop is heavy? Invariably more waste and loss is necessary than the same acreage planted with varieties that ripen successively and consequently lengthen the picking season three to four times.

Two years ago we had occasion to see a hundred acre orchard planted to Elbertas ripen completely within a few weeks. The farmer had his S.O.S. calls for help out all the time, using the service of everyone possible to help him save the crop, and on account of the urgent need of hurry, the work could not be planned in the same methodical business-like manner that could have been possible in handling the same quantity in three to four times the length of time. At times, including helping friends and temporary employees, it seemed as though upwards of 100 people sat down occasionally to meals. Contrast this with a case where eight to twelve people handled fifty acres on a well planned basis, keeping pace with the ripening fruit and moving every good peach to a waiting market without loss or waste.

Of course there are a great many varieties and quite a few very good ones to select from, but the list below will

furnish one that will come into bearing in about the order named and bring fruit to enable the grower to handle it with the least possible amount of additional help and make the shipping season spread over as long a period as possible.

## VARIETIES RECOMMENDED.

GREENBORO is one of the largest of the early peaches. It has a white flesh, and is tender and juicy. It is quite hardy.

ADMIRAL DEWY is an Elberta seedling and has given satisfaction as an early shipper and for this reason can be very profitable.

ST. JOHN is the first of the yellow fleshed peaches and is a money maker, supplying an early luscious peach that because of its early ripening gets the top of the market.

EARLY CRAWFORD supplies that large rich yellow peach known wherever peaches are grown. Many peaches are fine and very choice but none are quite as fine in flavor as the Crawford.

FITZGERALD, a Canadian production, is very hardy, has a deep yellow flesh, and is of very high quality.

ELBERTA, although lacking the flavor of some of the other peaches, is perhaps more in demand than all others commercially because it ships so well, arriving in perfect condition and appearing best for reselling in distant markets.

LATE CRAWFORD has the same wonderful flavor of the early variety and supplies the taste par excellence for the one who requires that above all else.

They ripen quickly, however, when the fruit is matured and bruise easily.

With such a comparatively perishable product as peaches accurate system must be observed to move all the picking and sell it at top prices with every good peach bringing all that the market will stand. This means that the crop will be moved just as soon as it reaches shipping state and shipment kept up with the ripening throughout the season to a sure market.

## CAREFUL HANDLING NECESSARY.

Assuming that spraying, cultivating and all that will bring the crop to a successful mature state have been properly done a fine crop can easily lose much of its value by improper handling. Naturally one who has established a reputation for well grown graded fruit finds little difficulty in locating a sure market. Both the buyer and the seller wish to prevent any possibility of loss to their mutually profitable dealings and no pains are spared to retain the business of the one and the product of the other.

In the case of Mr. F. Gallinger and his brother, J. B., the matter of sale has become almost a secondary one. Proper grading and satisfied big buyers have made a regular market that wants more than they can supply. When shipping one to two cars a day the buyers are always urging for more cars and even bid a better price to get the choice quality the Gallingers give them. Just four men who wholesale direct (not commission men) pay an arranged price and all deductions for freight and commissions are entirely eliminated. These buyers are located in the smaller cities where the markets are not glutted with so much commission stuff.

## MARKET REQUIREMENTS.

In the first place the fruit must be full grown but sound and firm. Full allowance is made for the few days of ripening between shipping and the use of the fruit. With the orchards arranged so that the early varieties are massed together and so on as they come into ripening straight picking can be done without skipping odd trees, as otherwise would be necessary.

All the fruit is carefully hand-picked into baskets without dropping to bruise them, using stepladders to get to all the peaches in the tree. Groups of workers keep filling up the baskets under a competent boss, placing them as filled together in a convenient place for the team to gather and keep the sorters busy. This team is kept constantly moving so that a regular flow of fruit goes from pickers to sorters all day long.

The sorters arrange the fruit so that all the baskets contain uniform size and quality. All fruit that could possibly hurt the high standard is eliminated and no question can arise with regard to payment. A mechanical sorter, similar to



Picking peaches in the orchard of Mr. F. H. Gallinger, Stamford, Ont.



# Thinning Apples

Prof. T. G. Bunting, Macdonald College, Quebec



Thinning has been practised with success in the orchards at Macdonald College, Que. These Yellow Transparent apple trees were photographed at harvest time, having been thinned between June 15th and 30th, when one-half to two-thirds of the apples were removed.

those used in sorting apples, is being used with some success. The necessity for eliminating the drop to avoid bruising makes it necessary to pick the fruit up off the sorter so that little time is saved. It has the value, however, of sorting more uniformly and requires less experience in grading the fruit.

The baskets here when properly graded and sorted are covered with red lino, adding considerably to the appearance of the fruit. The day's work accumulates until four or five o'clock, supplying as a rule the necessary quantity for at least one car and with the more rapidly ripening crop two to three cars every day. This means close to 10,000 baskets for each car. To handle this quantity every day of the shipping season means a business well in hand at every angle. A market ready waiting an early start to insure certain holding of customers to contract and even daily shipments to move all fruit before it gets beyond the best stage for shipping are all necessary to complete the process of selling every peach right. With varieties maturing in regular sequence the daily work will not vary more than the weather and steady regular work properly directed brings the shipping to a conclusion where all the results have been realized that conditions could assure.

The big double team comes into play here in taking the fruit to a nearby siding for loading with racks arranged to carry three tiers of baskets. A good quantity can be handled in each load and the day's work quickly placed in the cars for shipment. Arranged three tiers high, one on top of the other, the baskets seem to carry a very satisfactory way in box cars and reach their destinations sound and in the best shape for resale.

THE Yellow Transparent, Duchess, and Wealthy apple trees planted as fillers in part of the Macdonald College orchard twelve years ago have been bearing heavily for some years. Since 1914 considerable thinning has been done in these varieties to the great advantage of the trees, and the resultant quality of the fruit. Thinning has not caused the trees to bear annually because there are other important factors entering into crop production, but in the thinned trees there has been a strong tendency towards annual production. The Yellow Transparent trees have only missed one fair or good crop in the last five years. The Wealthy and Duchess during the same period have produced either a fair or good crop each year, although individual trees have not always produced a crop.

The thinning has been done during the last week of June on the first week of July, starting with the Transparent, then the Duchess and the Wealthy last. It has been the practice to leave only one apple on a fruit spur, and where the trees have set heavily to remove all apples from some spurs, leaving the remaining apples, one to a spur, and four to six inches apart.

It has been observed that where every fruit spur on the tree has one or more fruit there is little likelihood of that tree producing a crop the following year, although the Wealthy is more apt to produce some fruit or even a fair crop. This is due in the Wealthy to the fact that fruit is often produced from lateral buds on branches two and three years old. In one case in a six-year-old block of Wealthy trees a heavy crop of fruit was produced entirely on the branches of the preceding year's growth. The Transparent and Duchess have a greater tendency to produce their fruit on spurs.

During the past season as well as in former years in thinning these three varieties over one-half of the fruits set have been removed. Care is used to remove those fruits which are defective in some respect, or ill-shapen, or seem to be less favorably situated as far as sunlight is concerned. Thinning must be done with judgment and with a proper understanding of the fruiting habits of the different varieties.

Although it is tedious work and takes time at a busy season, the expense is more than offset in the less number of fruits to handle at harvest time, and in the larger size and very considerably higher quality of the crop. In fact at the College the No. 2 and No. 3 grades in these varieties have been practically eliminated from the thinned trees.

Thinning may reduce the total bulk of fruit in some years of heavy production,

but over a period of years it will show a larger total yield and with the higher quality and consequent higher prices the total returns from thinned trees will be considerably higher, and the greater satisfaction in handling good fruits is worth much to an enterprising fruit grower.

It would not be advisable to thin all varieties of apples, but at Macdonald College it has been the practice in the Transparent, Duchess and Wealthy. Where trees of these varieties have been thinned, much greater returns have been obtained.

## Be Careful When Pruning

Prof. J. W. Crow, Guelph, Ont.

LIGHT pruning in fall is permissible, but heavy pruning is dangerous and likely to result in serious damage from winter killing, especially if the succeeding winter is severe. The injury is caused by drying out of the cut area and may be prevented by covering all wounds of any size with a good covering of paint made from pure lead and oil. Do not use prepared paints, as these contain injurious benzine or turpentine dryers. To make an effective covering it will be necessary to give not less than two coats because one coat will not prevent checking and drying of green wood. Coal tar makes an excellent wound covering and is easily applied.

This matter of covering wounds made in fall or early winter is frequently slighted by orchard men, but the writer has seen such serious damage result from neglect of this precaution that he feels justified in warning fruit growers with regard to the practice. In experimental trials in the College apple orchard varieties as hardy as Duchess of Oldenburg, Wolf River, Snow and Scott's Winter have suffered very serious injury following November pruning with the cuts left unprotected. The wounds dry out around the edges and by spring the dead area is greatly enlarged, frequently extending down the trunk or branch for a foot or more. The dead bark comes away later leaving a large dead area detrimental to the parts above and certain also to decay later.

It is not likely that injury would follow the cutting of branches below an inch in size unless many were removed and there probably would be no necessity for covering such wounds. All above this size, however, should be thoroughly protected.

If you cannot get manure you will find legume crops ideal soil improvers for strawberry growing.



# Irrigation in the Okanagan\*

F. E. R. Wollaston, Manager of the Coldstream Estate, Vernon, B.C.

**I**RRIGATION in the Okanagan can be divided into two main headings, namely, the supplying of water to other people, and, the use of water after it has been supplied. There are far more people interested in the latter than in the former. I have to supply the water to other people, and also to use a lot on the land and both give me a certain amount of trouble.

In supplying water to others, it is necessary first to have the dams and reservoir sites in the mountains, and in the Okanagan the site is usually at or near the top of a mountain. After finding the reservoir site, the next thing to do is to build the dam, and when you are building the dam you must always keep in mind the possibility of a good rise in the stream and find out also your surrounding soils.

Intakes are as a rule expensive to build and in high water there is trouble in getting water to them. As regards ditches, the man who has a good dirt ditch is a lucky man if it does not start to seep and seed to white clover. Lining your ditch with concrete requires skilled labor and costs a lot of money and does not always work as well as one might think.

Many flumes have to be built with all our ditches. When money was plenti-

ful and steel was cheaper, many steel flumes were built, but they are not satisfactory for irrigation just now. They are, of course, liable to rust when gravel gets in and slides along them. The wooden flume, with which most of us are familiar, gives us trouble, but most of those troubles can be overcome by proper joining. One cannot build the concrete flumes which Mr. Dawson of the C.P.R. has had built. A number of wooden syphons have been built instead of high trestles and a great many have been put out of sight and started to rot and nobody seems to know what they are doing down there so they must be replaced. A continual stave pipe syphon above the ground seems to be the most satisfactory, because then you can see how it is running—or not running. Concrete pipes are all right for road culverts, but not very suitable for a head of water.

There is a good deal of work in maintaining the ditches, owing to the grass growing along the banks and the long grass falls down into the ditch and prevents the water flowing and seems to cause seepage. This seems always to be the case in our ditches, and cutting the grass along the ditch is a difficult job for any one.

## SUPPLYING THE WATER.

After you have got the works complete and running you have to supply

the user and there is a remarkable difference of opinion in the Okanagan as to how they like to get it. In the Okanagan there are two municipalities handling water, the Penticton and the Summerland. In the Penticton municipality they run water in the ditch every day, and in Summerland only two days to each user. The two municipalities were rather scornful of the methods of the other. That brings one down to the next item of dealing with the user. The human element crops up in all cases and more especially in that line. Very often you have to put a dam in a creek for irrigation works or you want to do it, and you often want to damn the user as well, but it is not good practice to do that. A man with a good line of talk, who can supply each water user and make him think that he is getting all the water in the ditch and that he is getting everything and the man next to him hardly anything, is a man that seems to make a success of being a water bailiff. You have to have a man who has no tendency to go up in the air.

From the water user's point of view we first come to his distribution works. I think the user should make his own distribution works. He should take care of them and keep them in shape. He has to make up his own mind as to what he will spend on those works and take into consideration the class of soil on his farm and the nature of the crops to be grown on his land.

As regards the supply of water for the different crops. Grain land irrigated in the Okanagan takes a good deal of water



A typical young orchard in the Okanagan District, B.C., where irrigation is extensively practised, the water being drawn from the hills shown in the background. At times during the summer the heat is intense and all kinds of fruit make very rapid growth.

\* Extract from an address delivered at the last Annual Convention of the Western Canada Irrigation Association, held at Nelson, B.C.





A crop of cabbage that would make any grower feel proud. About 1200 head are here shown. They were grown by Mr. Dunn, of Todmorden.

in the early part of the season, and if much land is under the grade it can supply more land than if in fruit, which requires water well on into the season. I think every crop that we grow can do with one irrigation at least. The early fruits seem to require irrigation to mature them in the hot season. The other fruits and grain seem to do well with one irrigation.

I do not think enough has been done in the Okanagan to prepare the land for irrigation. Economy of water is one thing that we have fallen down on. We have saved it in concrete reservoirs and ditches, but then we let it go over the

land and out of the ditches and waste a large quantity of it.

In dealing with water users, I find a lot of them have not learned what I learned some years ago, and that is when you are irrigating and it rains, keep on irrigating. You will get much better results and I have not seen a crop spoiled yet by irrigating thoroughly in that manner. Another thing, when there is lots of water in the ditch use it by all means if you can. It may not be there the next week. I find that it is not a bad idea to irrigate hay quite late in the fall and right up to the frost, because the water seems to stay in the ground until the spring and gives it a good start first thing.

## Notes on Dusting and Spraying\*

C. E. Petch, Field Officer, Entomological Division, Ottawa

TWO plots, side by side, containing forty-five mature Fameuse trees each, which almost touched at 33 feet, were sprayed and dusted respectively, five times, with one exception, on the same day. The dusted plot was treated with a mixture of 45% talc, 45% sulphur and 10% lead arsenate. The sprayed area was covered with lime sulphur 1.010 for the first, 1.008 for the second, and 1.006 for the last three. Paste lead arsenate was used in the five applications, two pounds to forty gallons. The spray-gun was used for applying the liquid.

The first application was made May 8th when the blossom buds were pink. Rain fell on the 9th, 11th, 12th, 13th,

27th, and 28th, and there was a heavy dew every night.

The second application was given May 29th, when the petals had fallen. Rain fell on May 31st and June 1st and 7th.

The third application was made June 11th when the apples were just nicely formed. There was a driving rainstorm that night and rain fell on the 12th, 13th, 14th, 16th, 21st, 22nd, 29th, and July 1st and 3rd. Heavy dew nearly every night.

Application four was made on July 2nd for the sprayed plots and on the 4th for the dusted area. The apples were about an inch in diameter. Rain fell on the 5th, 6th, 8th, 10th, 11th, 14th, 15th, 16th, 17th, and a heavy dew on most nights.

The fifth application was given on July 18th when the apples had made considerable growth and the mixture is still present on the fruit in the sprayed area. Rain fell July 29th and August 4th, 5th, 6th, 7th, 24th, 26th, 29th, 31st and Sept. 1st and 6th.

The cost was 97c. for each dusted tree and 46c. for each sprayed tree.

As for results both plots are practically perfect. There will be about 300 barrels on each and it is doubtful if there will be one barrel on each with a scab.

A dry lime sulphur supplied by Sherwin-Williams Co. was used twice on an orchard of Wealthy and McIntosh Red. There was no injury to foliage or fruit when used at the rate of 2½ lbs. to 40 gals. water when dry arsenate of lead was added, 1 lb. to 40 gals. When examined a week ago the control of scab and insect was excellent.

Calcium arsenate is a much cheaper poison than lead arsenate, therefore an experiment was carried out to see whether or not it could be safely used in dust mixtures. A mixture of 45% talc, 45% sulphur, and 10% calcium arsenate was applied to fifteen Duchess trees on May 29th, June 11th and July 4th and 18th. The poison proved to be safe to use, as there was no injury to either fruit or foliage.

## Weather Affects the Scale

Prof. L. Ceasar, O.A.C., Guelph, Ont.

The very long continued severe weather of last winter had quite a noticeable effect upon the San Jose Scale. This year there has been much less San Jose Scale in the Niagara District and in fact in Ontario than there has been for many years. The winter has been the main cause.

In Oxford County two orchards near Woodstock which have been known to have the scale in them for at least seven years and probably much longer are this year apparently free of it, and the winter is the sole cause. This shows that climate has a decided effect upon the San Jose Scale. There are many other things that could be brought to bear to show this, in fact were it not for climate there is no doubt that the San Jose Scale would be very much more widely distributed in Ontario than it is. It is practically limited in Ontario to-day to the district south of a line running from Toronto to Sarnia.

The first cause of trouble in transplanted trees is not infrequently to be found in the ignorance and lack of care exhibited before and during transplanting. Someone has likened the transplanting of a tree to a surgical operation, as being the time when the patient needs special attention; this is a thought which should be borne in mind at planting time.—C. F. Clark, Toronto, Ont.

\*A paper read at the September meeting of the Pomological and Fruit Growing Society of the Province of Quebec



# Growing Grapes Under Glass\*

W. J. Scott

A BEAUTIFUL bunch of grapes is delightful to the eye as well as delicious to the taste. But when one bunch is multiplied by hundreds, hanging from vines in a vinery, the sight is seldom forgotten. Many people, doubtless, have seen the celebrated vinery at Hampton Court Palace that has been furnishing large luscious black Hambro grapes for the royal table for nearly 150 years, but very few have any idea that grapes just as good, if not better, are now grown at Kelowna, B.C., in the Okanagan Valley by Messrs. Palmer & Rogerson in their vinery. To see them in all their glory is a sight to be remembered. Think of a thousand pounds of great black beauties three and a half inches in circumference, in clusters of three and a half pounds, as some of them are, hanging in all their loveliness in their framework of leaves, and you have a picture of this Kelowna vinery in Sunny Okanagan.



Mr. Palmer, the grower.

The vinery is not as large as that at Hampton Court Palace, for the vines are only seven years old, and the vinery only six, but you are compensated by a more concentrated view, which leaves, perhaps, a more vivid impression of the marvellous size and beauty of the grapes themselves.

The vinery is a wonder now, and in all probability will become a greater wonder as the years go by.

Besides the vinery, Palmer & Rogerson this year have six hothouses of tomatoes from which they started to ship ripe fruit on the 26th of May. They had shipped two tons of ripe tomatoes by the beginning of July from two houses and parts of two others. The vines looked in perfect condition with tomatoes in all stages of growth.

They sold nearly one million tomato plants last spring, and although the frost on the 23rd of May killed thousands of plants, very few of those they sold were frozen, because they were planted on the higher levels, which were not affected by the frost. This late frost was the first for 30 years in the Okanagan.

The C.P.R. is their customer both for

tomatoes and grapes, using them on dining cars and at their hotels. Their tomatoes also go as far as Calgary, Edmonton, and Saskatoon, and their grapes as far as Calgary and Regina.

In the winter Palmer & Rogerson grow chrysanthemums, carnations and lettuce. These are sold chiefly in the valley towns.

Mr. Palmer, who is the fruit and flower expert, gained his chief experience with the Viscount Portman at Bryanstone, Dorsetshire, and at the nurseries in London, England. He was a large exhibitor of grapes at the Norwich exhibition, Norfolk, where he took five or six prizes each year, for a number of years, for Muscats, Black Alicante and Black Hamburg.

Mr. Palmer was attracted to Canada and to British Columbia especially, by the quality of the fruit which he saw in exhibitions in the Motherland, and also by the description of the climatic conditions. He came to Kelowna in 1910 with the intention of starting a fruit ranch, but he saw the lack of greenhouses in the district and that people were demanding stuff they could not procure, so two years after his arrival, in 1912, he built two greenhouses, twenty feet in length, one of which is the vinery. He procured the vines from England, and they were planted in the May of that year. They produced a small crop in 1913, but in 1914 they were loaded.

There are twelve vines, six on each side, with three canes to each vine. Each cane is twelve feet long, with 600 bunches in all. The grapes last from two to three months on the vine, and from three to five months after they are ripe, if cut with the stem and suspended in bottles of water and kept at a tem-

perature of 45 degrees in a cool, dry room.

Mr. Palmer says that grapes grown under glass in the Okanagan surpass those grown in England because of the long sunny days. Mr. Palmer's partner, Mr. Rogerson, is in England for the duration of the war.

The Gardener's Assistant is authority for the statement that under favorable conditions the grape vine lives to a great age. Pliny mentions one 600 years old, and vines 100 years old are looked upon as young in the vineyards of Italy. Also that the age of some in Burgundy exceeds 400 years.

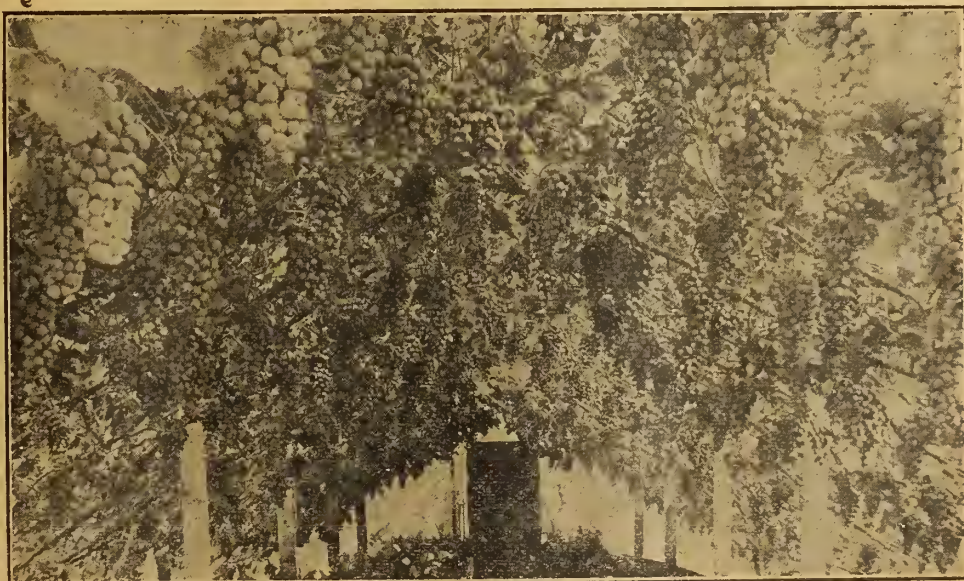
The celebrated vine at Hampton Court Palace was planted in 1769, 149 years ago, and it is yet bearing annually a large number of grapes. A black Hambro vine at Valentine, Oxford, Essex, which, according to Gilpin, was planted in 1758, and is still alive, is said to be the parent of the one at Hampton Court.

## A Large Season's Yield

Exceptionally fine results were obtained from his backyard garden this past season by Mr. John Riddell, of Peterboro, Ont. Mr. Riddell is a retired farmer, well up in years. He gives the following information about his garden:

"Our back lot is 50 by 85 feet, with a four foot roadway in the middle running lengthways. The stones were so plentiful on the first ploughing only about one-half of the ground was turned over. Later we removed thirty-two large wagon loads. All stones of a size to interfere with cultivation were removed to the depth of a spading.

"In our crop for this year rhubarb came into use on the 27th of April, and until well on in August it was in use almost daily, two and three times a day



Interior view of one of Palmer & Rogerson's greenhouses, showing bunches of the luscious grapes they grow. (Photos courtesy of B. C. Farmer).

\* From THE B.C. FARMER.





Palmer & Rogerson's Greenhouses, Kelowna, B.C., where grapes are being grown with great success. Note article on page 275.

for a family of four people, with a quantity to spare for others. We had leaves measuring thirty-two inches across.

"On July 12th we had ripe tomatoes and potatoes fit for use. We had sufficient for our use of onions, carrots, beets, salsify, spinnach, cauliflowers, cabbage, tomatoes, a-plenty, beans, corn, lettuce, peppers and artichoke (stalks seven feet high) between six and seven bags of potatoes, pie-pumpkins, cucumbers, and turnips; with a variegated and liberal supply of flowers.

"As some indication of our success: In the competition conducted by the agricultural paper, 'Farm and Dairy,' (open to Ontario and Quebec), we were awarded a second prize for potatoes, and in the Peterboro Industrial Exhibition second prize for potatoes, second prize for pie-pumpkin and pink tomatoes.

"On our lawn is a walnut tree planted some ten years ago, which at one foot above the ground is twenty-five inches in circumference, with a liberal top. It has borne walnuts for some years.

## Have Shrubs on the Lawn

When the improvement of home grounds is being considered, the various species of viburnums, or snowballs, are not to be overlooked, for while rather uncommon in lawn plantings they possess many desirable qualities in early blooming and attractive and abundant foliage and berries. The old-fashioned garden snowball and the black-haw of the roadside and thicket are familiar examples of this group of shrubs and small trees.

The shrubs appear most attractive when grouped in irregular, informal masses of three to twelve specimens or more. A single shrub may soon yield considerable planting material if the lower limbs are bent into shallow trenches and covered with a small quantity of firmly packed earth. Most of these layers take root within a year and when detached can be set out in permanent plantings.

The plants are often propagated by cuttings taken in October, buried in bunches of twenty-five to fifty in well-drained soil, and then planted in the garden in the spring.

## Trouble With Vegetables

### Troublesome Pests

How can I control cabbage and cauliflower worms?—L. B.

To control cabbage worms, use two ounces lead arsenate dissolved in one gallon of water and sprayed on plants. For cabbage maggot use corrosive sublimate, 1 ounce to ten gallons and pour around base of plants.

### Protecting Peas and Beans

What is the best way of protecting freshly sprouted beans and peas?—A.M.B.

Beans and peas are attacked by cut worms and can be killed by scattering a mixture of bran (ten quarts), sugar (one pound), and paris green (4 ounces), which has been moistened and mixed together. Obtain Bulletin 231 on Vegetable Growing, from the Ontario Department of Agriculture.

### Injury to Dwarf Beans

What causes dwarf beans to die off? The beans came up alright, attained a good size in the foliage and then the pods on, then suddenly died one by one and withered away.—E.S.

Your beans were destroyed by the bean maggot for which there is no remedy. This insect cannot be combated and the only thing that can be done is to replant. The maggot is very prevalent in years of cool, moist weather. Such weather tends to hold the bean plants back and give the insects a greater opportunity to work. Secure Bulletin 251, of the Ontario Department of Agriculture, on Insect Pests.

### Trouble with Tomatoes

Last June my tomato leaves turned yellow and had a bitten appearance. Some of my cucumbers were bitten also. I applied wood ashes. I planted peas and beans, many of which did not come up. Were worms the cause? I am an old woman, sixty-nine years of age, and would like to know the cause.—Mrs. L. OTTAWA.

Your tomato plants were probably affected with Septoria Leaf Blight. Some of the injury may have been done by flea beetles. The use of Bordeaux mixture of the 4-4-40 formula, with one pint of arsenate of lead added to it and sprayed over the plants helps considerably. The application of wood ashes is a little dangerous to plants. It would have been better to have applied it around them, and to have dusted the leaves with road dust or sifted coal ashes.

Your peas and beans may have been cut off by cut worms—a gray worm about one quarter of an inch thick and one-and-a quarter of an inch long. A little bit of bran mash placed among your plants will help to get rid of them. It may be that your beans and peas did not germinate. Some varieties of peas are liable to rot in cool weather.

## December Reminders

LeRoy Cady

Mulch the strawberries with about four inches of good, clean straw any time before heavy snows.

More than a million dollars' worth of ginseng is grown in the United States each year.

We need fewer varieties of all horticultural plants and seeds. The lists should be cut greatly and only the very best kept.

It takes six or seven years to produce marketable ginseng. It is not a get-rich-quick crop. In fact, very few people have the right location and the patience needed to grow a crop from seed to marketable plants.

The orchard trees will appreciate a dressing of stable manure this winter if none has been applied for several years. Put on the ground as far out from the trees as the branches reach.

Tramp the snow about trunks of trees and you will disturb the winter home of many mice.

Apple and other trees may be pruned on warm days during the winter when it is comfortable to work outside.

There is still time to plant any bulbs in pots or boxes for flowering in the house next spring.

Do not let ferns become dry. About once a week stand in a tub of water so as to thoroughly moisten the roots.

## Fall Planting Not Favored

Apples and pears are the only fruit trees recommended for fall planting by the Department of Horticulture at the Ohio Experiment Station. Stone fruit, such as peaches, cherries, and plums, make a more successful growth when planted in the spring. When young apple or pear trees are planted in the fall they should be set firmly in the soil and carefully mounded with earth to protect them from field mice and also from freezing and heaving.

Fruit trees of all kinds may be ordered during the fall, however, and "heeled in" during the winter. This process consists in separating the trees from the bundles after they arrive from the nursery and planting them in a trench at an angle so that only the tops extend above the ground when the trench is filled. The "heeling in" process accomplishes the same results as if the trees are planted in the fall as far as growth is concerned. In addition the trees are ready for early planting while spring-ordered trees may be delayed in shipment.

Young trees for planting should never be allowed to dry out either in shipment or in the "heeling in" process. Some protection from rabbits is sometimes necessary after the trees are placed in the trench.



# Forcing Rhubarb in Winter

J. McPherson Ross, Toronto, Ont.

**R**HUBARB for winter use has been for a long time one of the market gardeners' recognized products, and though partly looked upon as certain luxury, on account of the high price which the first supply brings, yet for all the high price the demand always exceeds the supply; or, as the store-keepers say, "You can hardly ever get enough of it to sell." Its cultivation is of the simplest nature and any householder with a garden and a warm cellar may easily grow what they want for themselves by digging up in November or December two or three preferably strong roots and placing them in the bottom of a barrel or box for convenience. Cover with sufficient soil to fill all vacant spaces, and water sufficiently to thoroughly moisten them. Place the box or barrels in the warmest part of cellar. To keep off dust or fine ashes cover them with bagging or anything that will answer the purpose. Light is not necessary, in fact the stalks are more tender grown in the dark than in the light. Any temperature from 50 to 70° is just right. Of course the warmer the roots are kept the faster they grow. The stalks may be pulled at any stage of growth that they can be used or wanted.

Those who have greenhouses may use the spaces under the benches profitably by filling them with the roots late in the fall or even by putting them in the furnace room if roomy enough. The demand is so brisk at good prices many a useful dollar could be gathered in to help out the coal bill—a consideration these days.

Another method of having early rhubarb practised by gardeners who have frames and sash, is to fill what

frames they want before winter with the roots. Good high frames are necessary for the growth of the stalks, also to allow a sufficient mulching of leaves and manure to prevent freezing inside. When filled place on the sashes. Here they may be left till February or early March, when the mulching should be taken out and the sunheat used whenever possible. The frames should be well banked around with manure and on severe nights cover over the glass. The whole idea is to keep the growth of the plant from being checked. The roots after being forced are of little value and not worth using again.

Myatt's linneaus, or, as more commonly called, the strawberry rhubarb, is best for forcing. Any variety will do, but this kind is very attractive because of the vivid red of the stalks. Its blanched yellow leaves brighten up the butcher shops in the spring days with its color. Needless to say, the bunches are not over large.

## Cherry Leaf Blight

During the past few years, some thousands of sour cherry trees in Ontario have been destroyed mostly by the leaf blight. Many trees that lose their leaves because of the blight, according to Prof. L. Cæsar, of Guelph, die later through winter injury. In such cases the trunks are frozen black or brown.

Leaf blight can be almost entirely controlled. The largest sour cherry orchard in the province is that of Howard Leavens, of Bloomfield, in Prince Edward county. Mr. Leavens has used Bordeaux mixture and when necessary arsenate of lead in combatting leaf

blight. He sprays three times, and follows the schedules recommended by the Provincial Department of Agriculture. Prof. Cæsar prefers Bordeaux for the leaf blight as it sticks better. The last application is given just as the cherries are showing signs of ripening. This spray usually kills the cherry fly.

The cherry blight, Prof. Cæsar believes, can be controlled at an expense of five cents a tree a season. This is borne out by results obtained in a number of orchards where tests in its control have been conducted. He would like to see a law enacted preventing the sale of cherries where over five per cent of the crop has worms.

## QUESTION BOX

### Planting Tulips

According to the November copy of THE CANADIAN HORTICULTURIST I have made a mistake in planting my tulips of which I have a number in boxes and pots in the cellar. You say plant tulips in pots two inches deep, whereas I have followed the Hyacinth rule and planted so that the tip of the bulb is just showing. True, I have left space for water. Will the method I have adopted be fatal to the good showing of the bulbs; or is there any step I can take to remedy the blunder? They have been in the soil about four weeks now down in the dark and cool cellar.—A.W., Winnipeg.

You have potted the bulbs you mention at the proper depth. The best general rule for potting bulbs is to set the bulbs so that the top of the bulb is just below the surface of the soil, the surface of the soil being about half an inch below the top of the pot or box they are in, so as to allow for water space.

It is not always easy to be sufficiently specific in giving planting directions in the confines of a short article. There are two articles in the November issue. They differ as to depth of planting. Two inches below the surface as mentioned in one article may be misleading in some cases, as bulbs differ in size and length. On page 255, in "Plants for Winter Blooming," it states to place the top of the bulb slightly above the surface of the soil. This last method, while correct with large bulbs, would mean that some of the smaller bulbs, such as freesia, tulips, etc., would be set too shallow to give good results. If you have set the bulbs planted in pots or boxes so that the top of bulbs are just under the surface, they are set properly, and should give good results so far as depth of planting is concerned. The bulbs should not be disturbed at the roots now, after four or five weeks being planted, on any account.

"I would be very much disappointed to miss a copy of THE CANADIAN HORTICULTURIST, even if it cost double the amount. To the amateur florist, like myself, it is the best friend we have."—J. DAVIDSON, Chatham, Ont.



The civic garden plots in Gage Park, Hamilton, Ont., were plowed by the use of a tractor which is here shown at work. Does this not contain a suggestion for other centers interested in greater production?



# The Canadian Horticulturist

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The only magazines in their field in the  
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1. The Canadian Horticulturist is published  
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**FRUIT EDITION**—Devoted entirely to the  
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Beekeeper .....	1,613
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THE CANADIAN HORTICULTURIST,  
Peterboro, Ontario.

## Brightening Prospects

The signing of the armistice with the prospect  
of an early peace has effected a marked change in  
the prospects for the fruit industry. One of the  
first signs of improvement was the granting of  
permits to export fruit to Great Britain, which  
already has influenced apple prices favorably.  
The most beneficial effect, however, of the  
change in conditions is a marked restoral of con-  
fidence in the immediate future for the fruit  
industry.

No industry has felt the effects of the war  
more severely than that of fruit growing. Added  
to the influence of the war there have been four  
poor crops in succession in Ontario, something  
probably never known before in the province.  
The serious effect of the cold weather last winter  
also tended to make many fruit growers feel dis-  
couraged in regard to the future of the industry.

Now that peace is practically in sight con-  
ditions may be expected to right themselves  
rapidly. Where ships have been required to carry  
troops and supplies to Europe, returning light to  
this continent, we may expect from now on that  
they will be engaged largely in returning our  
men to this side of the Atlantic and that there  
will be plenty of space available for shipments of  
fruit for the European markets. The shortage  
of food in Europe, now that more shipping space

will be available, should tend to increase the  
demand for our apples.

As quickly as possible the extra tariff burdens  
imposed on our growers since the outbreak of  
war should be removed. These have greatly  
increased the cost of production in a number of  
ways without in some cases proving of much  
benefit to the funds of the Government in as much  
as the tariff was raised to a point where it has  
prohibited imports in a number of lines and thus  
cut off any revenue to the Government in the  
form of duty. With the lowering of the tariff to  
its original level at least growers should find it  
possible to obtain fertilizers, insecticides and  
other supplies on a basis which should mean  
considerable relief to them.

For four years it has not been found practical  
to hold the Ontario Horticultural Exhibition,  
which before the war proved an important factor  
in promoting the fruit industry in Ontario. At  
the approaching annual conventions of the  
various provincial associations interested in this  
exhibition arrangements should be made for its  
renewal next fall.

Fruit growers who have kept reasonably good  
care of their orchards during the past four years  
as well as those who have young orchards just  
coming into bearing should reap a rich reward  
during the next few years as not for many years  
have the orchards of Eastern Canada been so  
depleted of bearing trees in good condition as  
they are at present. For four years very little  
fruit planting has been done and as the demand  
for fruit has been increasing with the growth of  
our urban centres the prospects for those fruit  
growers who are in a position to take advantage  
of the situation are most encouraging.

## Plant Victory Oaks

There is a widespread desire in Canada  
to recognize in every suitable way the great  
services of those who have represented us  
in the world's greatest war. This desire  
is expressing itself in various ways. One  
suggestion is that a national flower shall  
be selected and arrangements be made for the  
planting of these flowers on the graves  
of those who fell in France and who are  
buried overseas. Another proposal is that  
a National Decoration Day shall be estab-  
lished as was done in the United States af-  
ter the Civil war.

From Cleveland comes a new suggestion,  
which we understand has been adopted in  
Springfield, Mass., and seems likely to be  
come popular across the border. It is that  
Victory Oaks shall be planted along the  
public boulevards in memory of those who  
have fallen or been wounded and possibly  
for those as well who enlisted. Of late  
years tree planting has not received the at-  
tention that its importance deserves. The  
result is that in many of our cities it is not  
uncommon to see whole blocks absolutely  
bereft of shade trees. Even in residential  
districts there are far too many streets  
where slightly shade trees are few and far  
between. A movement of the kind that has  
been proposed in Cleveland might well be  
inaugurated in Canada. Horticultural so-  
cieties could properly take a lead in launch-  
ing it. Which Horticultural society and  
city will be the first to gain the credit of  
making such a move?

## Lay Plans Now

This should be a good time for our various  
provincial fruit growers' associations to take  
stock of the position of the fruit industry and its  
prospects for the future. With the Government  
itself advising farmers, while the war was in pro-  
gress, to grow grain rather than fruit, where  
shortage of help made it impossible for them to  
do both, added to its action in preventing the  
export of Canadian fruit abroad, it is not to be

wondered at that the fruit industry has felt the  
effects of the war to a serious extent. Many  
orchards that have been neglected are probably  
injured to a point where their redemption would  
not prove profitable. There are many other  
orchards, however, where good management  
from now on should restore them to profitable  
bearing conditions. Every possible effort should  
be put forth by those in charge of such matters to  
see that such fruit growers are encouraged and  
assisted as far as possible to reclaim their  
orchards.

In planning for the future in Ontario our  
Provincial Government might well consider  
once more the advisability of placing market  
commissioners during the fruit season on such  
large markets as Toronto, Montreal, and Winni-  
peg. The market commissioners of the British Co-  
lumbia Provincial Government, at Vancouver,  
Calgary, and other points in the West, render  
most efficient service to the fruit growers of that  
province. Ontario growers would benefit by  
receiving a similar service. That fruit market-  
ing methods in Ontario can stand considerable  
improvement is indicated by the extent to which  
the Pacific Coast fruit outsells eastern fruit on  
our own markets. Western fruit is gaining a  
reputation for quality in the east which may  
have a detrimental effect on eastern fruit in the  
future, if more energetic steps are not taken to  
promote its sale on a better basis. The appoint-  
ment of market commissioners as suggested  
should prove of value in this direction by making  
it possible to advise growers at the period when  
their fruit is being placed on the market of  
improvements needed in its quality and in the  
methods of handling it.

## A Christmas Suggestion

One of the most difficult problems of the  
average home is the question of remembering  
one's friends at Christmas. One's circle of  
friends is usually fairly large, and at the Christ-  
mas season of good cheer and friendliness the  
normal man or woman has a desire to let his  
friends in some little way know they are not for-  
gotten.

There are many ways in which one can, with-  
out much trouble, secure a Christmas gift which  
will prove useful and will be appreciated no  
matter how little the cost. One of these methods  
is our special Christmas offer which appears on  
the back cover of this issue. Many people have  
become interested in gardening during the war  
and that interest must be continued, for the  
demand for greater food production will last for  
some time yet. Where a garden was at first a  
task, it has become a rare source of pleasure and  
of profit.

THE CANADIAN HORTICULTURIST is recognized  
as the best and indeed the only Canadian publi-  
cation devoted to horticulture in Canada. The  
Floral Edition is especially edited for amateur  
flower and vegetable gardeners and is a most  
valuable guide to the garden enthusiast, as many  
have testified. Garden books are good but after  
all there is nothing like fresh, gingery, well-  
written articles and experiences in a magazine  
which reaches you twelve times a year. There  
is a human interest and a diversity about a  
magazine which no book can supply.

Surely, one could find no more practical, in-  
teresting or economical Christmas gift for friends  
than a year's subscription to THE CANADIAN  
HORTICULTURIST. The subscription price is  
low—under our special Christmas offer of three  
subscriptions for \$1.00 and one has the satisfac-  
tion of knowing that one's friend will think of  
one, and of the kindly act every time a new issue  
comes.

Take advantage of our Christmas suggestion  
before the last minute rush comes on. Send in  
the names and addresses of your friends and we  
will do the rest.

We will send to each of your friends a beauti-  
fully embossed Christmas card informing them  
of your thoughtful gift so that it will reach them  
on Christmas morning.



## : SOCIETY NOTES :

## Western Gardening Efforts

Fredrick Abraham, Hon. Chairman of the Vacant Lot and Home Garden Section of the Canada Food Board, reports that there was an enthusiastic response to the appeal for the planting of war gardens throughout the west. "British Columbia gardens produced enough to supply the prairie provinces with fresh vegetables for many months in the year," says Mr. Abraham, "if the transportation problem could be solved. I believe this is only a question of time. Everything seems to grow in great abundance in British Columbia, and many of the vegetables have two crops in the season."

Mr. Abraham reports that the school children of British Columbia readily joined the school children plot movement with splendid enthusiasm and the crop produced made quite a material difference to the local supply. In Victoria, boulevards were plowed and planted to potatoes. In Winnipeg, it has been estimated that there were 21,319 gardens under cultivation, of which about 1,700 were on vacant lots.

## London

At the annual meeting of the London Horticultural Society pleasing reports of progress were made by the president, S. F. Woods and by the secretary-treasurer, A. M. Hunt. In the president's address reference was made to the large growth of membership during the past year which has made the London society one of the largest, if not the largest in the province, the membership being 1,103. The two splendid tulip shows and the gladioli shows held, received special mention.

The Floral Edition of THE CANADIAN HORTICULTURIST was given this year to all members of the society and contained much valuable information.

A notable feature of last year's activities spoken of by Mr. Wood was the distribution of the blooms from the society's flower shows amongst the sick people in the city. Mr. Hunt, who has proved a capable secretary, resigned the position. His successor is Mr. L. Spry. The society spent last year \$1,800. It has planted beds of tulips at the Public Library, one each of Rev. Eubank, Madame Krelage, and Ingliscombe Pink; also three in the park. It has also furnished tulips for a bed at the Military Hospital.

In addition to a yearly subscription to THE CANADIAN HORTICULTURIST, each of the members received a spring premium of three climbing plants—Ampelopsis, Engelmanni, Clematis Viti-cella Lonicera, and two shrubs, Forsythia Fortuni and Chamaecerasus, and in the fall one dozen each of three varieties late tulips, Rev. Eubank, Madame Krelage and Inglescomb Pink. The reason the society was able to give such liberal premiums was because it imported direct from the growers. President Woods does not favor giving members options on account of the high cost of premiums when purchased in small quantities.

## Hamilton

The secretary of the Hamilton Horticultural Society, Mrs. R. B. Potts, who, during the past season has supervised the gardening done voluntarily by the Boy Scouts of the city, and looked after fully 150 boys, who were enthusiastic and hardworking gardeners, has received a letter addressed to the boys of St. Margaret's Troop, from Henry B. Thomson, the Food Controller,

congratulating them upon winning the first prize in the exhibition at which their fruit and vegetables were shown. The boys worked hard, every one of them, and out of the three prizes offered they captured first.

The secretary's report, presented at the annual meeting, showed progress in all lines. Another appeal was made to members for surplus plants from their gardens for the beds at the Mountain Sanatorium that more planting may be done there. Food production was the leading feature of the society's work, and will be again, as the need for food production has not ceased with the hostilities overseas.

The membership last year was 608, a slight increase over the preceding year; receipts \$1,330.52, and expenditures \$1,085.12, leaving a balance of \$245.40.

Mr. John A. Webber, the president of the society, who is also a director of the Ontario Horticultural Association, has recently been promoted to the position of assistant city postmaster.

## St. Thomas

The financial report of the past year of the St. Thomas Horticultural Society, as presented at the recent annual meeting, showed that the total receipts had been \$8,199.19, and the total disbursements \$7,984.05, there being a balance in the bank of \$215.14. Wages for the year amounted to \$2,065.41.

The assets were \$2,383.60. Of this \$600 was in roses on hand. Against the assets were liabilities of \$907.76, showing a surplus of \$1,475, which made the society about \$225 better off than the previous year. The expenditures on the M. C. R. Park amounted to over \$2,000, against which the society had received grants

from the Michigan Central Railroad for 1917 and 1918 to the amount of \$1,000.

During the year \$4,300.86 was paid out for bulbs, roses and shrubbery.

Dr. Bennett, the president, reported the society to have on hand the finest roses in the country, they being so good that firms from Toronto and other large cities had endeavored to purchase the entire stock. During the year 100,000 tulip bulbs had been imported from Holland and thousands of peony and cannas from the United States, where these bulbs are grown extensively now. Dr. Bennett regretted that Canadian bulb growers had not taken up the culture of the canna and peony more extensively so as to supply the demands.

After ten years of service as president, Dr. Bennett asked to be relieved. The members would not accept his resignation and a committee was appointed to see if it could not induce him to reconsider his decision. It is understood that the society will gladly allow him \$1,200 a year if it will be any inducement to him to remain in office, as the great success of the society has been largely due to his efforts.

## Poppies From Flanders

Chatham Horticultural Society will endeavor to import a quantity of poppies from the battlefields of France to be replanted in Tecumseh Park in commemoration of the dead. At the recent annual meeting of the society John Glassford was re-elected president of the society; James Innies, secretary; James Simon, treasurer.

Mr. W. T. Ross, Secretary of the Picton Horticultural Society, whose success in the growing of rare plants is widely known, has produced this year a Blue Cornflower, which was grown from seed sent from the Vimy Ridge battlefield by Rev. D. G. MacPhail. He has also grown successfully the Golden Band Lily of Japan. Some of the flowers grown by him were exhibited recently in one of the local store windows.

## Fruit Embargo Partly Lifted

THE announcement that appeared recently in the daily press that since the cessation of hostilities arrangements have been made to once more permit consignments of fruit to Great Britain was a welcome one to Canadian fruit growers. Already it has had a stimulating

effect on the market, although the announcement came too late to benefit most producers whose crops, in most cases, have passed out of their possession.

THE CANADIAN HORTICULTURIST learns from (Continued on page 282.)



Pupils of the Victoria Avenue School, Hamilton, Ont., held a successful fair last fall. Some of the vegetables and other products of the pupils' gardens that were exhibited are here shown.



# Plant Orchards Now!

IT IS THE OPPORTUNITY OF THE HOUR FOR EVERY CANADIAN FRUITGROWER



Harvesting Alexander Apples at Macdonald College, Que.

THE close of the War has completely changed the fruit situation in Canada. For the past four years, fruitgrowers have been greatly handicapped by the embargo on exports of fruit to the European Markets, poor crops and other disadvantages. Now markets are open once more, for the embargo has been lifted and apples may be shipped to Great Britain under a general license.

## NOW IS THE TIME TO PLANT OUT APPLE TREES

### BECAUSE—

1. For ten years there have been no big plantings of apple trees in Ontario, and of these many are dead and worthless. Professor Crow, of the Ontario Agricultural College, stated recently, "Of the thousands of young trees set in the boom years of 1905 to 1911, a large proportion have already passed out of existence. Probably not more than 20% of the trees planted during these years will figure in the commercial production of the future, and certainly not more than 40% of them are alive and receiving reasonable attention to-day."

2. Last winter a large number of the older orchards were winter-killed by the severe weather conditions. Thus the apple orchards of Ontario are now at a minimum. The fruitgrower who is looking forward to the coming years, should realize that now is the time to plant.

3. Since the war, many orchards have been sadly neglected, so that it will take years to rejuvenate them.

These conditions and the opening of export markets predicts a coming boom in the fruit industry. The grower who plants first will be the first to reap the reward.

A word of advice, when planting! Don't plant poor trees. Buy vigorous, healthy stock that will give early and permanent satisfaction.



A Well Kept Apple Orchard is a Paying Investment

(Advertisement)



# Money In Apples

AN APPLE ORCHARD IS A BETTER INVESTMENT THAN AN ENDOWMENT POLICY.

**A**NOTHER important reason why growers should begin planting orchards at once, is the rapidly growing scarcity of fruit stocks. When the war began, nurserymen generally had a fairly large stock of apple trees, in addition to which, the previous spring, they had planted heavily in young seedlings which had to be budded or grafted. The last of them are now saleable trees, and in a couple of years will be finished.

Meanwhile the supply of French seedlings

on which nurserymen in both Canada and the United States depend for their stocks has become very small. This state of affairs will make fruit trees scarce for many years. A United States authority recently stated: "Little propagation has been going on due to lack of labor and other causes and little lining-out stock imported. As a consequence there is every indication that in two years from now there will not be enough stock in the country to supply the demand."

## Sharp Advance In Prices

**T**HE shortage of stocks will cause shortly a considerable advance in the price of apple trees. Growers will be wise to buy now, while prices remain nearer normal.

## Best Varieties To Plant

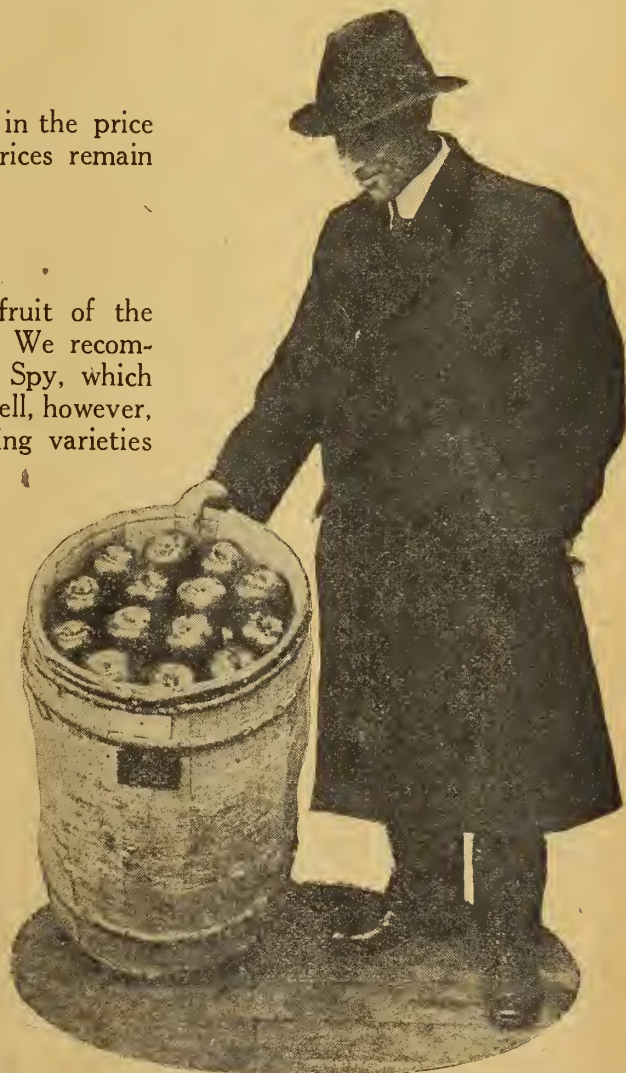
**T**HERE will always be a good demand for clean, well grown fruit of the leading varieties both on the Canadian and British markets. We recommend in planting permanent orchards a large proportion of Spy, which still continues to be the most popular winter variety. It would be well, however, to consult with the nursery firm with whom you are dealing in selecting varieties best suited for particular localities.

### A well known Apple Grower and Exporter writes :

"I have more call for Spy than anything else. I would say, that even a year like the present, I do not know of anything on the farm that will pay like an orchard of the right varieties, properly taken care of. I believe in nine years out of ten, a ten acre orchard, with proper care will give as much profit as the remaining 90 acres of a 100 acre farm devoted to general farming."

### What Prof. J. W. Crow says :

"I do not believe as some do that the market situation requires to be straightened out first. On the contrary I am quite convinced that any fruit grower who is able to produce year after year a satisfactory crop of reasonably high grade fruit will have for years to come an active market to take his product off his hands. In other words, I believe that our fruit growers lose out not in marketing but in production and that if they will grow the fruit they will be able to sell it without difficulty."



Clean, Well-packed Apples Always Sell



## The Fruit Embargo

(Continued from page 279.)

Fruit Commissioner C. W. Baxter that the embargo has not been completely removed. Instead, permits are being granted to shippers to export certain quantities. In a letter under date of Nov. 25, explaining the situation, Mr. Baxter writes as follows:

"Needless to say the removal of the embargo on apples going to the United Kingdom is a matter of great importance to the fruit industry of Canada, especially to the fruit growers in Nova Scotia, and since the announcement of the armistice we have been quite active with regard to the export of apples. We have been in constant communication with the British Ministry of Food (Canada), in Montreal, also by cable with our representative in Liverpool.

"On Saturday last (Nov. 23) we received a cable from our representative to the effect that no apple order had yet been completed by the British Food Controller, but that he had an-

nounced through the press, on the 23rd instant, that the probable primary distributors' maximum price would be 6¼ pence per pound and that the probable retail maximum would be 9 pence per pound. Importations would probably be restricted to licensed importers.

"To-day (Nov. 25) I have been in communication with the British Ministry of Food, Montreal, who stated that they have now been duly authorized to issue permits and that already there have been permits issued up to 10,000 barrels. Permits are issued in the order in which they are received.

"I would suggest that you communicate with the British Ministry of Food (Canada), 137 McGill Street, Montreal."

### LATER REPORT

In a letter, dated December 4, Mr. Baxter wrote:

"We have no further definite information regarding shipments to the Old Country, but understand that there likely will be some changes in the near future.

is not to be taken as a model for the future development of the industry. The fact that an operator renting orchards as a business requires to rent several in order to get acreage enough to make the venture worth while is additional proof, if any were needed, that the future of apple growing lies in the large orchard.

Another important point which should be strongly gone into, in case a survey were made, is the matter of whether or not it is possible to conduct apple growing as an exclusive specialty on a large scale or whether it can be satisfactorily combined with other industries such as stock raising, dairying and the like. The writer is of the opinion that the best possible economic basis for apple production is a combination of apple growing with general fruit growing, such as is practised, for example, in the Burlington district. Apple growing there is carried on along with the growing of pears, plums, cherries, raspberries, currants, gooseberries, and strawberries. No doubt peaches and grapes would be included in the combination in a commercial way if the climate of the locality were as well suited to them as it is to the fruits mentioned.

### HARDY VARIETIES NEEDED.

Other important problems are the selection of satisfactory commercial varieties which would be hardy enough to avoid the very serious losses occurring in Ontario from winter killing of tender sorts. The indications are that Baldwin, for example, is not to be depended upon for hardiness. How far it is safe to plant it in Ontario is a serious problem. On the use of fertilizers we have very little information, but it is absolutely impossible to secure profitable crops without feeding the trees. My own opinion is that there is a greater improvement to be made in the matter of feeding the trees than in any other feature of our orchard practice.

Concerning the question of new markets, it has long seemed to me that our high-grade Spies, Snows, McIntosh, etc., would find a ready market at top prices in the large cities of the United States, many of which lie within easy reach. In mentioning this matter to Ontario shippers, I have been assured by several experienced men that there is an excellent market for our best grades, but that we are in the unfortunate position of not being able to assemble these fancy grades in sufficient quantity to justify shipment to these markets. I feel very confident, however, that we have in Ontario a class of fruit which is unsurpassed on this continent and since the highest prices for choice fruits are obtained in the cities referred to, it seems to me, it would be well worth while to connect up with these markets.

As to united effort on the part of the growers, there is obviously great need for co-operation if the industry is to be revived. I am inclined to think, however, that the present tendency towards large orchards is the correct one and that the large orchard would enjoy the advantage of being able to market independently. Most of our best growers are far enough from market to feel the necessity of co-operative action, and fully realize, no doubt, that strong co-operation societies are the life of apple production in Ontario. I am afraid however, that the time has gone by when we can advise the owners of small orchards to give much attention to them even under best conditions of organization.

Speaking before some Niagara Peninsula fruit growers, Prof. L. Caesar, Provincial Entomologist, stated recently that the average fruit grower does not appreciate the importance of obtaining a high proportion of good fruit and an increase in his yield. Were growers to neglect their orchards for five years, in the matter of spraying, pruning, and cultivating, at the end of that period half of their trees would be dead, and the other half not much better excepting possibly sour cherries and some varieties of pears, through the work of the San Jose scale and other pests.

## The Position of Ontario's Fruit Industry

WHEN asked recently by THE CANADIAN HORTICULTURIST for an expression of his views on the prospects for the fruit industry in Ontario, Prof. J. W. Crow, of the Guelph Agricultural College, replied as follows:

Now that hostilities have ceased, the effect on Canada's apple industry should be immediate and direct, because of the removal of the British embargo. With respect to small fruits, plantings have increased and are increasing very rapidly under the stimulus of high prices and in spite, moreover, of high wages, I think the increase in strawberries and raspberries has been very marked, although I am not able to estimate the same in acreage or percentage. I believe that for the immediate future the best openings are in raspberries, strawberries, currants, and gooseberries, but I also believe that special emphasis should be put on the importance of planting cherries, plums, pears, peaches and apples, in order to meet the probable shortage of the near future.

I do not believe, as some do, that the market situation requires to be straightened out first. On the contrary, I am quite convinced that any fruit-grower who is able to produce year after year a satisfactory crop of reasonably high-grade fruit will have for years to come an active market to take his product off his hands. In other words, I believe that our fruit-growers lose out not in marketing but in production and that if they will grow the fruit they will be able to sell it without difficulty.

### APPLE PROSPECTS.

In reply to some questions that were asked me some time ago, before the armistice was signed, I replied as follows, my remarks being intended to apply more particularly to apple growing:

It has seemed to me for some time that unless something is done, we in Canada are likely to find ourselves in a bad way for a supply of fruit for our tables. The commercial grower of fruit is intensely interested, but even his interest is subordinate to that of the consumers of fruit, most of whom appreciate the importance of fruit in the dietary, and who should certainly not be allowed to suffer for lack of this important and necessary element.

In reference to the important industry of apple growing in the province of Ontario, it is my opinion that the situation is bad and has been steadily becoming worse. We have had several bad seasons in a row with more or less complete crop failures or with low grade fruit in consequence of weather conditions favorable to disease and insect pests. Labor costs, which constitute by far the most important item entering into cost of production, have been climbing to points hitherto unprecedented. The result is that the majority of orchards have been allowed to fall into neglect. This is particularly true of the

small orchards—those up to five or six acres in extent and very frequently those up to ten acres or even more acres in size. In point of fact it is not too much to say that the small orchard in the province of Ontario has dropped out of sight as a factor in production. Inasmuch as a very large percentage of the apple acreage of Ontario consists of these small orchards, it is quite obvious that the present situation is one of very serious depression. The present is the critical time and unless vigorous action is taken the industry will suffer permanently, or take many years to recover its normal healthful tone.

### LARGE ORCHARDS ALL RIGHT.

The orchards above a certain size are for the most part being well cared for and it is in this fact that hope for the future lies. It is surely not too much to say that if the small orchards are being allowed to pass into neglect it is because they are unprofitable under present conditions, and, conversely, if the large orchards are being cared for it is because it pays, even under present conditions, to look after them. Just where the line is to be drawn between the profitable and the unprofitable orchard in Ontario at present might very well be the subject of a special Government inquiry, and I would strongly urge an accurate and comprehensive survey in order to determine the minimum size an orchard requires to be to justify the expense of care and attention under present conditions in this province. Other definite points which should be determined are with reference to conditions making for success, such as soil, drainage, location, shipping facilities, varieties, the use of fertilizers and manures, as well as details of spraying and tillage practices. This matter of an accurate survey of present conditions might very well receive special attention from the Ontario Fruit Growers' Association in their forthcoming annual convention.

### AN ECONOMIC CHANGE.

It remains to be pointed out that this change in the conditions of apple production is being brought about by a matter of economics, and is moreover entirely normal and quite to be expected under the circumstances. Anyone who has travelled through the apple growing districts of New York State will realize that the new conditions appearing in our horticulture are identical with those which appeared long ago in the horticulture of the older and more established states to the south of us. Apple growing in New York State took on years ago the aspect of large scale production from units of comparatively large size. In Oxford county, Ontario, are to-day numerous first-class orchards of good varieties of ten or fifteen acres in extent with which the owners refuse to be bothered. Many of these are rented by other parties. While such a scheme may be encouraged as a temporary expedient, it



## British Columbia

Chas. L. Shaw, Victoria, B.C.

**T**HE yield of British Columbia orchards this year, especially in the Okanagan country, is heavy. It is still early to predict the value of the crops, but it is well established that it will be well above the 1917 total.

Fruit shipments from the Okanagan Valley have greatly exceeded all previous estimates. These statistics will show to what extent the returns have increased over those of last year, and over the early estimates, the 1917 figures being quoted first, then the estimates and then the actual number of packages sent out:

Cherries, 14,628; 20,038; 41,770.

Apricots, 13,244; 28,850; 40,286.

Peaches, 52,754; 89,868; 142,494.

Plums, 41,552; 66,062; 97,440.

Prunes, 55,730; 78,056; 117,012.

These figures show an all-round increase. Cherry and apricot production of 1917 was almost tripled. Peaches, British Columbia's outstanding bumper crop of 1918, were produced in quantities almost three to one in comparison with last year. Plum production was doubled, as was also the case with prunes.

In making his last report, J. A. Grant, British Columbia's Fruit Commissioner in the prairies, says:

"In order to control the recurring difficulties in marketing we should know our competitors in a friendly way and adopt the solutions they have found as a remedy, and where the problems are unsolved to join with them in seeking the solution. We urge organization, not only in districts but as a province. We must present a united front and a clear case when confronting powerfully organized companies seeking reasonable concessions. Time and a little money must be spent in getting together; the weak must be built up by the strong. If producers of fruit and vegetables in British Columbia do not organize they cannot succeed in getting the cost of production for their wares. Producers to be strong must be well paid for their work. Enough to live on is not sufficient; we need a reserve or margin of safety to build up assembling plants and storage, to meet the needs of a growing industry. At our rate of growth we must look for a wider market for our fancy stuff. These markets are plentiful, and are supplied by organized peoples. We are by far too cheese-paring in expenditure on the things that matter. We need good service and must pay for it. Farmers should forget their little troubles in order to cope with the big ones. When the big ones are set right, the small ones will fall into line. Our progress has been good, and our output increases by leaps and bounds. We feel sure that our growers and shippers will not fail to measure up to the situation confronting them."

The big frostproof warehouse which is being built by members of the Vernon Fruit Union, under the name of the Vernon Storage Company, is now well under way. This building is said to be the largest of its kind in the west on either side of the line. It is 400x80 feet in area, with a basement the full size of the building. Hollow tile is the construction material. The structure will accommodate about 250 cars of apples for winter storage.

Dependable  
Investment

**A. E. AMES & CO.**

Established 1889

UNION BANK BUILDING, TORONTO

Montreal

New York

Suggestions  
On Request

## Taylor-Forbes Tree Pruners

Made on the correct principles, of superior materials and priced right because they are made in Canada with Sheffield steel blades.

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Hardware Dealers  
Everywhere

If you can't find just exactly what you want in a Tree Pruner, write for our catalog

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LIMITED  
Guelph, Canada

**SKINNER SYSTEM OF IRRIGATION**  
Control complete. Prevents drought losses. Reduces labor bills. Increases profit. Special Portable Line for \$15.75. Send for new Bulletin.  
The Skinner Irrigation Co.  
217 Water Street Troy, Ohio.

## DUPUY & FERGUSON'S CATALOGUE OF HIGH GRADE SEEDS FOR 1919



will be ready for distribution about the first of January; the handsomest, most practical and complete Seed catalogue published in this country. It tells the plain truth about

**D. & F.'s High Grade Seeds That Grow**

The descriptions are accurate, absolutely correct and free from exaggeration and extravagant claims. Write a postcard for a FREE COPY to-day.

61 FIRST PRIZES were awarded at the Montreal Horticultural Exhibition, September, 1918, to Mr. F. S. Watson on products grown from Dupuy & Ferguson's seeds.

**DUPUY & FERGUSON**

38-42 Jacques Cartier Square  
MONTREAL



## Notice to Beekeepers

All previous prices on Beekeepers' Supplies cancelled November 1st. Send for new list, which will be subject to usual early cash order discounts.

**The Ham & Nott Company, Limited**

*Manufacturers of Beekeepers' Supplies*

Brantford - Ont.

## THE BEEKEEPER'S DIRECTORY

The following beekeepers will be able to supply Bees and Queens in any quantity for the season of 1919. Order Early.

W. R. STIRLING,  
Ridgetown, Ontario.  
Breeder of fine Italian Queens.

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Glenwood, Michigan, U.S.A.  
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L. PARKER,  
R.F.D. No. 2, Benson, N.C., U.S.A.  
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Full Colonies of Bees, Spring, 1919.

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Liberty, Mo.  
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Choice Italian Queens. Italian Bees in Pound Packages.

List your name and stock in this directory.  
Write for special rates.

## BEE SUPPLIES

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Root goods made in Canada, Beeswax made into foundation. Ask for prices on honey and wax. Canadian catalogue on request.

**The Canadian Bee Supply and Honey Co., Ltd.**  
73 JARVIS ST. - TORONTO, ONT.

## POULTRY YARD

### Making the Hens Pay

Cull the flock closely and early so as to get them well settled before winter, and feed a good generous ration. The following ration and method of feeding have given satisfaction:

Scratch feed, composed of two parts corn, one part feed wheat and one part oats, is fed in a deep litter morning and evening: Dry mash of two parts bran, two parts shorts, two parts cornmeal, half part gluten, half part oil cake and one part fine beefscrap in hoppers all the time. Green feed: Roots, mangels preferred, or sprouted oats at noon; also either green cut bone in the proportion of a half ounce per hen per day or moist mash, or these may be fed alternately.

When sour milk is available a supply is kept constantly before the flock and the green bone may be omitted. Grit, oyster shell, charcoal and beefscrap are also kept in hoppers, and a supply of water is at hand.

The need to keep up production is very apparent—so apparent in fact that not one pullet that is capable of profitable production should be slaughtered. At the same time it would be well to remember that word profitable. There will be undoubtedly a strong demand for all the new laid eggs that can be produced, but that is no reason why poultrymen should produce eggs if they cost more than they will bring.

**CULL THE HENS CLOSELY.** Do not keep over a lot of old wasters. It is rarely that a hen over two years old—especially in the heavier breeds—will produce eggs profitably.

In order to lay well, a bird must have a sound body. It must be vigorous and healthy. This is indicated by bright, clear eyes, a well-set body, a comparatively active disposition and a good circulation.

### Steps to Success

1. Keep accurate records. Little progress can be made without this first step. The average monthly and yearly egg-production, cost of feed and income from the flock should be known.

2. Feed a properly balanced ration. Such a ration furnishes nutrients for growth, maintenance, fattening and eggs. The production of eggs must be a constant aim.

3. Give proper care and comfort by good housing and management. Discomforts are: Extremes of heat and cold, hunger and thirst, foul air and dampness, and diseases and parasites.

4. Keep standard-bred, utility stock. There are five good breeds. Plymouth Rock, Rhode Island Red, Leghorn, Wyandotte and Orpington. Varieties of these have been bred for heavy egg-production. There are other good breeds for those who prefer them.

5. Breed from the best, both male and female. There are many signs of vigor and high production.

6. Sell unprofitable stock.

7. Market graded products. Maximum returns are secured from graded products.

These seven steps will lead to success.

### Kill the Mites

Do you want a good home-made lice powder for your chickens? Then mix three parts gasoline and one part crude carbolic acid and as much plaster of Paris as the liquids will moisten; allow the material to dry for a few hours and then place the powder in air-tight containers. The powder

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## Annapolis Valley Notes

Eunice Buchanan.

WITH the embargo removed, shippers are hoping to get apples on to the Christmas market in England. However, things are uncertain, but hopeful. There has been a demand for apples locally. No. 1 Kings have made \$5 a barrel. The evaporators and canning factories are taking quantities. The Waterville Canning Factory employs 36 people, who are able to put 800 bbls. of apples weekly into gallon cases. Last year the Government bought the entire output.

The work for November has been the general rounding up of the season's work, and

making things snug for winter. At the time of writing there are still some turnips out. The zebra caterpillars did not appear in numbers to injure them this fall. We have been shovelling earth around the young trees to protect them from mice, which are plentiful this year.

After the snowstorm on October 18th the weather was ideal for getting in belated crops and hauling apples. Many farmers have been down with the Spanish influenza, but their neighbors have not failed them. On November 14th a heavy, damp snowstorm fell. The wet snow clung to the telephone and telegraph wires in such masses that the damage can hardly be estimated. In driving between Waterville and Berwick we counted seventy telephone poles down

or damaged in about four miles. Numbers of wires were snapped. For a time traveling became difficult, owing to the heavy roads, and the steering over and under telephone wires. A very heavy rain fell on November 18th all day; this added to the fall of snow, has caused considerable floods.

The highest award for strawberry production in Creston Valley for 1918 goes to Joe Wigen, a Wynndel grower, with an official showing of 770 crates shipped from one acre under cultivation. None of these sold for less than \$3 a crate. A remarkable showing in raspberries is made by W. A. McMutrie, a Creston rancher, who had 117 crates off one-seventh of an acre. These also sold for more than \$3.



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## Niagara District Notes

F. G. H. Pattison, Winona, Ont.

SEPTEMBER was a cold, wet, cheerless month in the fruit belt; indeed, there were only about two warm days during the entire month, but October and November have made ample amends for the shortcomings of September. Not in years have we had a nicer fall for accomplishing all kinds of outdoor work. The season continued open till late with little or no serious frost, consequently, both tomatoes and grapes had a long ripening season, and this added materially to the amount harvested in good condition.

Grapes really ripened this year and were sweet and pleasant to the taste, a great contrast to last season. The crop, however, was on the whole a light one, most vineyards turning out barely a basket (6 quart) to the vine, whereas it is not uncommon for them to turn out two baskets per vine, or even more. The price, however, made up in great degree for the short crop, from \$60 to \$80 per ton being paid for whole vineyards by the grape juice, canning and jam factories, many of whom had jam contracts with the British and American Governments. In the open markets of Hamilton and Toronto from 40 to 65c was paid per small basket.

The price of nearly all fruit has been more in accordance with war conditions than any year since war was declared, and on the whole growers have done fairly well. A few, however, had almost a total crop failure, and they have been badly hit. Most fruit was clean and free from disease, although apples were quite wormy where spraying was at all neglected.

Plums were a pretty good crop of excellent quality, which brought better prices than for years. Pears were light, except Bartlett's and Keiffer's. The former were a good half crop and fetched from 75c to \$1.25. The latter were about an average crop and brought varying prices. The canning factories contracted a number of them at 3 to 4 cents per lb. early in the season; later on, however, they bought them much cheaper than that. In the Hamilton market they ranged from 35 to 65 cents per large basket.

The peach crop was very variable. Some had little or nothing, others a light crop, and some quite a good crop. Prices were excellent, running from 85c to \$1.50 per large basket. As I write (November 28th) the season is still open and some are busy plowing. Many, however, are finished, and the orchards present a neat, tidy appearance. The tractor has been quite a feature

in the fruit orchards this season, and has been a great help to such growers as availed themselves of it. More and more fruit growers are purchasing tractors. Some of the large orchards in the vicinity of Winona could never have been cultivated properly without the tractor, but with its help they



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References: The Canadian Bank of Commerce (Market Branch) and Commercial Agencies.



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presented a better appearance than they have for some years. A tractor drawing two disk harrows, each set to throw different ways, and a drag harrow following, soon makes good work in an orchard.

The season was very favorable for the help question. Not for many years has fruit been so easily picked and harvested. All the local people turned out to help, and many old and middle aged people found that they could do a good day's work still. A number of university and high school lads were employed and gave good satisfaction. Around Winona not as many National Service girls were employed as last year, many of the growers thinking that they were too exacting in their demands. In the early part of the season, however, a large number of them were employed in the jam factory. Further east, however, at Grimsby, Jordan, etc., a good many of the National Service girls were employed, and appeared to give fairly good satisfaction. The apple crop has turned out fairly well in this section. Fall apples, Snows and Greenings were the best. There was also a fair sprinkling of Baldwins and Russets. Spys were decidedly scarce.

For the past few years the fruit growers of this district have been decidedly up against it, and some have become discouraged. But I feel certain that those who stay with the game will again, in a few years, reap abundant profits once more. The Ontario public will awake some day—not so very far distant—and find that there is a fruit famine in several lines. To those who are willing to give the best of care to their trees, etc., now, it appears to me, is an excellent time to plant plums, pears, peaches, or apples.

There is a good future for small fruits also, provided the picker question can be satisfactorily arranged, as indeed is likely in the not far distant future, now that the war is over. The prices of materials will also be sure to come down although there is no immediate appearance of it. The price of baskets, for example, is higher than ever, \$90 per thousand for old style, and as high as \$102 for the new standard 11-quart.

The future of grapes is at present a little uncertain. Should the manufacture of native wine be rigidly prohibited it will undoubtedly have a decidedly prejudicial effect on the grape industry. Grape juice has never been popular with the Canadian people. For one thing our warm season is too short, and it is only a warm weather drink. Another reason is that it is too insipid for the taste of many. Indeed I have heard some say that it is very little different in flavor from sweetened water.

The Girls' Service Battalion at Old Niagara has been doing excellent work in gathering up and preparing fruit, vegetables and chickens for our wounded soldiers overseas.

Mr. Bishop, a grocer in Old Niagara, is trying out a new experiment in the bleaching and making ready for market a large quantity of fine celery. To do this he has converted a section of the basement of his store into a celery bed, in which over 300 dozen plants are buried, while undergoing the bleaching process. Mr. Bishop intends placing this celery on sale during the winter and expects to supply the market at the time other celery, usually imported, is off the market, but still in good demand for table use, cooking, etc.

Some of the weather prophets have been indulging themselves with prophecies of an early and long, hard winter. So far, however, there is no indication of it—indeed, what signs there are appear to be in the reverse direction.

## Draw on Your Customers



21

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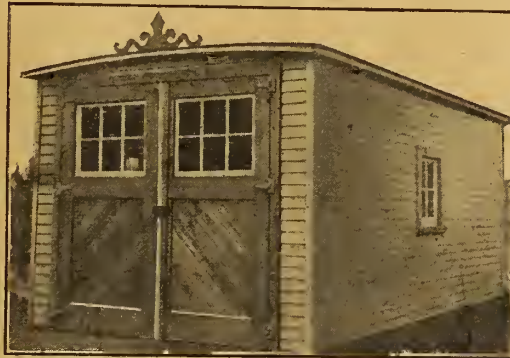
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Production is pretty well over in the canning business now for the season, and, taken as a whole, the pack has been fairly satisfactory, although some lines are considerably below what was expected early in the season. Marketing conditions for canning products could scarcely be better. As a result most of the canning companies are getting on their feet again, whilst two or three years ago they were nearly all in a very shaky condition; indeed, it was only the formation of a holding company, embracing practically all the canning companies, that saved them.

Both apple picking and packing has been later than usual in this district, indeed packing is not finished yet of some of the larger orchards, although picking is. Buyers have been few this season, and many of the growers have packed their own apples. The canning factories and evaporators have been deluged with apples, so much so that the price, which started at \$1.00 per 100 lbs. has fallen to 50 and 60 cents. The ruling price of apples, Nos. 1 and 2, has been from \$3 to \$4 per barrel, excepting Snows and Spys, which have run from \$5 to \$6. In consequence of the absence of buyers a considerable quantity of apples have gone to waste in the sections of country adjacent to the Niagara district. Conditions in the Province of Ontario generally seem to be more and more tending to the elimination of the small apple orchards, which will shortly have a great effect in diminishing the quantity of apples produced, although it may improve the general quality.

Towards the end of October grapes on the Buffalo markets were selling at from \$1.30 to \$1.50 per 12-quart basket, or from \$115 to \$135 per ton; apples, 50 cents to \$2 per bushel; quinces, \$2.75 to \$2.85 per bushel; and pears, \$2 to \$4.50 per bushel. These prices are a great contrast to those prevailing during the last two seasons, especially in the case of grapes. Apples, pears, and quinces do not show any great difference from local prices this side of the line. New pack tomatoes are quoted in a jobbing way at \$1.90 to \$1.95 per dozen, and sweet corn on a 35 per cent delivery at \$2.20 to \$2.25 in Ontario.

Prof. O. M. Morris, Professor of Horticulture at the Washington State College, states that where apples show any indication of water-core they should be gathered as soon as sufficiently mature. Although the fruit may be affected there is no damage to the tree, nor to succeeding crops. Fruit so af-

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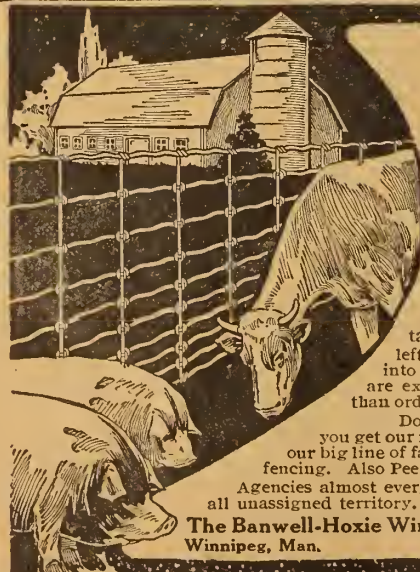
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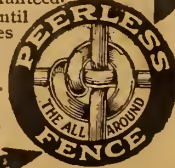
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## King Apple

In Eden at the dawn of time,  
To all the world's regret,  
The apple tempted Mother Eve,  
And lo! it tempts us yet,  
As mellow King of Tompkins red,  
And pippins smooth, invite  
The apple-lover passing by  
To stop and take a bite.

The Greening and the Baldwin, too,  
And rosy Northern Spy,  
Bring thoughts of tasty apple-sauce,  
And juicy apple-pie,  
And apple-snow—a dainty dish—  
And apple-jelly clear,  
And apple-dumplings piping hot,  
To all New England dear.

Last year a youth and maiden strolled,  
Through orchards far from town,  
He climbed a tree to shake for her  
The last red apple down.  
Now in a cosy city flat  
In wedded bliss they bide,  
But every night he carries home,  
An apple to his bride.

The kiddie on the way to school  
An apple likes to munch,  
The workingman is glad to find  
An apple in his lunch,  
For lo! of all delicious fruits  
The sunny seasons bring,  
The peach, the plum, the grape, the pear,  
The apple is the king.

—Minna Irving.

Fresh sweet cider and pasteurized cider are highly recommended as a health drink by eminent physicians and scientists. Sweet cider is a tonic as well as a nutrient, containing natural salts and acids of special value in the correction of stomach complaints and liver and kidney trouble. Pure, sweet cider can readily be made available as a delightful home beverage the year

around and is far superior to the ordinary type of soft drinks. Chemical preservatives should be avoided, but pasteurizing to 160 degrees for two hours and sealing tight is effective for preventing fermentation.

Apple butter has long been a stand-by as a staple food and table delicacy and merits a place in the diet of every family. A favorite home recipe is as follows: Boil three gallons of apple cider down to one and one-half gallons. Pare and quarter sufficient apples to make three gallons. Pour over these sufficient additional cider to cover apples well. After cooking until tender run through colander then add the boiled cider and boil down to desired thickness. When nearly done add one and one-half pints sugar and when done flavor with one teaspoonful allspice and one teaspoonful cinnamon. For making apple butter on a large scale, a steam apple butter cooker should be used. It makes a butter with the right flavor quickly and with the least amount of labor.

A former editor of THE CANADIAN HORTICULTURIST, Mr. A. B. Cutting, B.S.A., who enlisted with the Canadian Forces some two years ago, and who has been overseas for about a year, has had some interesting experiences in France. Besides going over the top seven times in ten weeks Mr. Cutting's experience in horticulture has been called into use by the military forces. For some time he was used as instructor in horticulture at the Vimy Ridge School. He was offered a position on the staff, but declined it in order that he might obtain experience in the trenches. We are informed also that Mr. Cutting has been given openings to continue this kind of work in the schools for soldiers that have been opened in Great Britain by the Canadian Government.

I am a new subscriber to The Canadian Horticulturist and have obtained some very useful information from the first copy re-

ceived last month, and I will gladly put in a good word for The Canadian Horticulturist whenever an opportunity presents itself.—E. S. Huson, Ottawa, Ontario.

## The Time to Act

Already in a number of Canadian cities returned war veterans have commenced the practice of decorating the graves of those victims of the great war who have been buried on this side of the ocean. This practice is destined to grow and shows that the proposal that has been made to establish a national Decoration Day in Canada is timely and one which is sure to meet with public approval. Decoration Day in the United States has been universally popular for many years. The sacrifices growing out of the great war of the manhood of the country should make a similar day equally popular in Canada. This situation affords a splendid opportunity for some of our national organizations, such as the men or women's Canadian Clubs or Daughters of the Empire, to launch a movement for the observance of a national Decoration Day in Canada.

## The Glory of the Garden

"Our England is a garden, and such gardens are not made  
By singing: 'Oh, how beautiful,' and sitting in the shade  
While better men than we go out and start their working lives  
At grubbing weeds from gravel paths with broken dinner knives.

"Then seek your job with thankfulness and work till further orders,  
If it's only netting strawberries or killing slugs on borders;  
And when your back stops aching and your hands begin to harden,  
You will find yourself a partner in the Glory of the Garden."

—Rudyard Kipling.















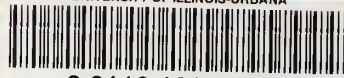








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